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URTICARIA

VI. A NEW IMMUNOLOGIC WHEAL PRODUCED EXPERIMENTALLY BY REVERSE TECHNIC

ABRAHAM WALZER, M.D.

BROOKLYN

The experimental production, through internal channels, of an immunologic wheal on normal and on abnormal skin has been reported in previous communications.[1] It may be outlined briefly as follows: From 0.01 to 0.05 cc. of human serum obtained from a food-sensitive patient is injected intracutaneously into a subject. After twenty-four or forty-eight hours he is fed a definite amount of the specific offending food to which he has been locally sensitized. A reaction, consisting of a wheal with surrounding erythema and accompanied with pruritus, appears at the passively sensitized site from two to ninety minutes after the ingestion of the excitant. The steps in the development of this wheal and the various forms it may assume have been described in detail in the previously cited publications. This technic for the production of wheals is virtually the same as that which was devised by Matthew Walzer [2] to demonstrate the absorption of unaltered protein from the gastrointestinal tract into the circulation.

In the present communication I shall deal with the experimental production through internal channels of another type of wheal. I first observed it while engaged in the early studies on experimental wheal formation.[1b] Like its predecessor, this wheal is immunologic in its mechanism. The technic for its production, however, differs from the

From the Clinics of Applied Immunology and Dermatology of the Jewish Hospital and the Dermatology Clinic of the Good Samaritan Hospital and Dispensary, New York.

1. (*a*) Walzer, A., and Walzer, M.: Studies in Urticaria: I. Wheal Production Through Internal Channels, Am. J. M. Sc. **173**:270, 1927; (*b*) Urticaria: II. The Experimental Wheal Produced on Normal Skin Through Internal Channels, Arch. Dermat. & Syph. **17**:659 (May) 1928. (*c*) Walzer, A.: Urticaria: IV. Wheal Formation on Abnormal Skins, ibid. **20**:277 (Sept.) 1929.

2. Walzer, M.: (*a*) A Direct Method of Demonstrating the Absorption of Incompletely Digested Proteins in Normal Human Beings: A Preliminary Report, J. Immunol. **11**:249, 1926; (*b*) Studies in Absorption of Undigested Proteins in Human Beings: I. A Simple Direct Method of Studying the Absorption of Undigested Proteins, ibid. **16**:143, 1927.

one previously described in that the offending antigen is ingested first and the sensitizing serum is injected intracutaneously after the antigen has entered the circulation. Because this order of procedure is the reverse of the original method, it has been designated as the reverse technic.

The reverse technic has been employed by Matthew Walzer and me [3] as a means of making quantitative studies on the absorption and the elimination of antigens after their enteral and parenteral administration, and I [4] have employed it to study the effects of the oral administration of certain medicaments, such as peptone, dilute hydrochloric acid, alcohol, mineral oil and kaolin on the experimental wheal of internal origin.

TECHNICAL CONSIDERATIONS

1. *The Sensitizing Serum.*—The specimens of serum for sensitization were obtained from food-sensitive patients who manifested marked reactions to cutaneous tests with extracts of certain foods. Most of the studies were made with the serum of a patient who was extremely sensitive to peanuts. This serum was particularly suitable, since the titer of the reagins for peanut was high and that of the reagins for other antigens was extremely low. A serum obtained from an egg-sensitive patient and one from a fish-sensitive patient were employed in some of the studies.

For sensitization the serum was used undiluted or in a dilution of 1:4 or 1:10. Serum (0.01 cc.) was injected intracutaneously for passive local sensitization.

2. *The Antigen.*—The test meal of peanut antigen consisted of twenty or of forty slightly roasted peanut kernels (approximately 15 or 30 Gm.). For the studies with egg, the white of one egg was taken. The test meal after injection of the fish serum consisted of one third of an average-sized herring (about 50 Gm.).

3. *The Subjects.*—The subjects were young adults with normal skin who had not had atopic illnesses (e. g., hay fever or asthma). They avoided the antigenic foods employed in these tests for at least forty-eight hours before the experiments were begun.

The flexor and the outer surface of the arm were found to be the most suitable sites for sensitization. A tested area was not used again for several months.

In the studies of wheals induced by the reverse technic, one factor demanded particular attention. This pertained to the subject's local cutaneous response to the injection of the sensitizing serum in the absence of circulating antigen. As the intracutaneous injection of a serum induces a local response, it was essential to differentiate this type of reaction from the immunologic wheal occurring subsequently at the same site and produced by the presence of antigen in the circulation.

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3. Walzer, A., and Walzer, M.: Studies in Absorption of Undigested Proteins in Human Beings: V. A New Technic for Quantitatively Studying the Absorption and Elimination of Antigens; a Preliminary Report, J. Allergy **6**:532, 1935.

4. Walzer, A: Studies in Urticaria: V. The Effect of Certain Substances upon the Experimental Wheal of Alimentary Origin, in Nekam, L.: Deliberationes Congressus Dermatologorum Internationalis, Budapest, 1935, vol. 2, p. 134.

LOCAL CUTANEOUS RESPONSE TO INJECTION OF SENSITIZING SERUM

The intracutaneous injection of 0.01 cc. of the sensitizing serum before the ingestion of the antigen was followed by one of three types of cutaneous response. The reaction most frequently observed began almost instantly with a faint local itching or stinging sensation, together with an edematous skin-colored elevation. The latter rapidly developed into a wheal. It increased somewhat in size, occasionally to 4 mm., became pink, dome shaped and slightly indurated. In some instances the edge of the wheal became red, forming a collaret about 0.5 mm. wide. The wheal was surrounded by a faintly erythematous but not sharply outlined halo. From ten to twenty minutes after the injection the reaction reached its height. Its type, size and induration were recorded at this time. The wheal remained unchanged for a minute or two and then began to fade. In most instances it was gone within twenty-five or thirty minutes after its onset.

Another type of reaction somewhat less frequently encountered was a slightly elevated, nonpruritic, skin-colored elevation, about 2 to 2.5 mm. in diameter, slightly indurated and with or without a small hazy surrounding bush. This remained unchanged for a minute or two and was gone in about ten minutes.

A third type of cutaneous response to the serum consisted of a combination of the two reactions just described. It began immediately as a nonpruritic skin-colored elevation and ran the course of the latter type of reaction. After a minute or two it again flared up and followed the course of the first type. Fortunately, this form of cutaneous response was rather uncommon. A subject with such a response to serum was not a good subject for study by the reverse technic.

All the local cutaneous reactions resulting from the serum were small and rather mild as compared to the immunologic wheal which is to be described shortly. The same subject always gave the same type of local tissular response to repeated injections of the same serum, although slight quantitative variations were occasionally noted when injections were given on different days. The factors most likely responsible for the variations in the reactions were probably one or several of the following: (*1*) the concentration or quantity of the injected serum; (*2*) the location of the site on the skin; (*3*) the age of the serum and (*4*) the presence of some irritating substance within the serum. It is possible that some immunologic property of the sensitizing serum or a peculiar reactivity of the skin may have accounted for some of the variations.

REVERSE TECHNIC

The subject's local cutaneous response to the injection of serum having been noted, the next step is to determine the time when the ingested protein entered his circulation. This may be accomplished with Matthew Walzer's technic,[2] slightly modified as follows: Thirty or forty-five minutes after passive cutaneous sensitization, when the local serologic reaction resulting from the injection has practically subsided, the subject is fed the offending antigen. From eight to twenty minutes after its ingestion a wheal begins to form at the sensitized site. This reaction is a specific one, resulting from the interaction of the serum reagins fixed in the skin and the ingested antigen reaching the site via the circulation. Its onset may be considered an indication that the antigen has entered the circulation. Its nature and development have been described in detail in a previous communication.[1b]

After the presence of the ingested antigen had been demonstrated in the blood, the subject was given another intracutaneous injection of the sensitizing serum at a new site. The usual local serologic reaction immediately developed and soon receded. This was followed in about ten minutes by the development at the same site of another wheal, which completely replaced the reaction resulting from the injection of the serum.

This wheal frequently began to form before the local reaction to serum had completely disappeared. Under such conditions any erythema which was still present suddenly began to increase in extent and intensity. If the small receding wheal still persisted, it instantly assumed new life and began to enlarge peripherally. It became more elevated and indurated and turned light pink or ivory white. Regardless of its mode of onset, the immunologic wheal progressed rapidly and reached its height of development about twenty minutes after the injection.

WHEAL REACTION BY REVERSE TECHNIC

The wheal resulting from the reverse technic invariably included the site of the injection of the serum. It was always limited to this site and never developed around it, as frequently happened in wheals induced by the direct technic. The wheal was from 3 to 7 mm. in diameter, round or oval, sharply outlined, more or less flatly convex, pink to ivory white and markedly indurated. Surrounding it was the erythema, usually a homogeneous dark red blush from 0.6 to 2.5 cm. in diameter, with a sharp but irregular border. Occasionally the erythema was composed of closely packed fine erythematous puncta. At the height of the reaction scattered puncta and patchy erythematous points sprang up around the erythematous halo. Final readings and tracings of the wheal reaction were made at this time. Pruritus was usually marked.

After the wheal reaction had fully developed, it remained stationary for a minute or two and then began to recede. The pruritus was usually the first to disappear; then the borders of the wheal gradually flattened out and spread. The indurated edema slowly softened, and the color changed from ivory white to red. Thirty minutes after the onset the typical characteristics of the clinical wheal were gone, and in its place was a dome-shaped, red, smooth, elevated, soft, not sharply outlined area somewhat larger than the wheal.

Up to this point the wheal produced by the reverse technic followed practically the same course as did the wheal obtained by the direct technic. In their subsequent behavior, however, they frequently differed. By the direct technic, especially when sensitization had been effected the day before the ingestion of the antigen, the reaction slowly receded and was gone in from two to four hours.[1b] By the reverse technic the progress of the reaction after it had reached the soft elevated stage was slow, and finally one of two lesions developed, a circumscribed edematous swelling or a deep-seated nodular edema.

The Circumscribed Edematous Swelling.—In some of the reactions the elevated area following the wheal became more raised and indurated, instead of flatter and softer. It assumed the form of a globular, firm, circular or oval swelling, not sharply outlined. Subjectively, it was associated with a sensation of heat rather than of itching. The overlying skin was smooth and reddened. This swelling had a tendency to spread into the surrounding tissues and was often somewhat larger than the original wheal. It seemed to remain stationary for an hour or two and then to recede. It was difficult to determine when regression had actually begun, because the decrease in the swelling occurred so slowly and so imperceptibly that it could not be measured. The hardness in the lesion persisted until the complete regression of the swelling from eight to twelve hours later.

The Deep-Seated Nodular Induration.—In this type of reaction the soft raised area resulting from the wheal flattened out within an hour or two and reached the level of the surrounding skin. Palpation of the site, which at this time appeared somewhat reddened, showed a nodular induration, about the size of the original wheal or somewhat smaller, at the seat of the previous wheal but at a deeper level. It appeared to be under the skin rather than in it. The time of onset of this lesion was difficult to decide, as its presence could be determined only after the clinical wheal had practically disappeared.

The nodule felt round, smooth, hard and sharply circumscribed. One of its characteristic features was its persistence. It was usually most pronounced and most prolonged in those reactions which were produced from three to five hours after the ingestion of the offending food, when the antigen in the circulation was diminishing rapidly. It ran a slow and protracted course, gradually decreasing in size rather than in hardness. In a few instances it lasted about fourteen hours.

METHOD OF FORMATION AND DEVELOPMENT OF WHEAL REACTION INDUCED BY REVERSE TECHNIC

Unlike the wheal induced by the direct technic, the wheal induced by the reverse technic developed under conditions which were not ideal

for its formation. The local capillaries were in a state of mild refractoriness, caused by the immediately preceding local serologic reaction. The fixation of the reagins was hampered because of the presence of antigen in the circulation at the site of local passive sensitization. Finally complete refractoriness of the local superficial capillaries resulted before all the reagins could be fixed and the reaction completed. Under such unsatisfactory conditions the wheal produced by the reverse technic was always smaller than the one produced by the direct technic on the same subject. A comparison of the wheal produced thirty minutes before ingestion of the antigen (direct technic) with those produced thirty

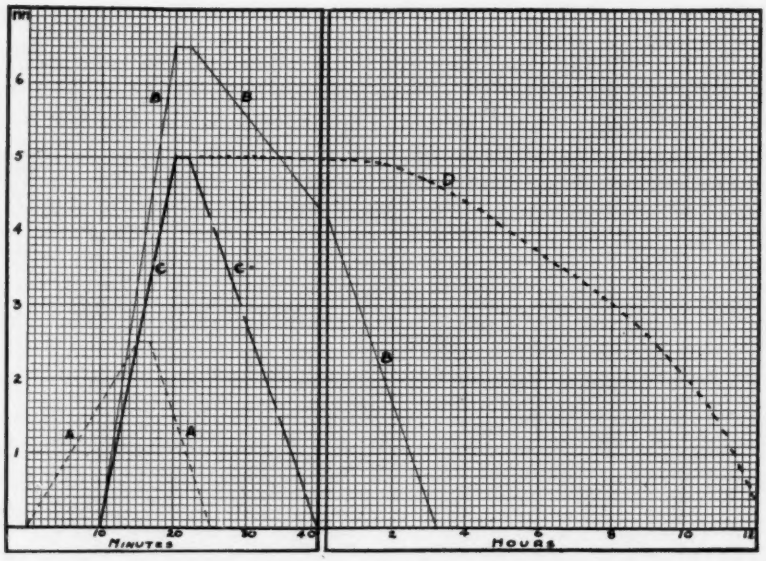

Chart 1.—Comparison of the wheals at the sensitized sites. *A* represents the time of onset, the size and the duration of the wheal following injection of the serum in the absence of circulating antigen; *B*, the time of onset, the size and the duration of the wheal produced by the direct technic, i. e., sensitization first and antigen later; *C*, the time of onset, the size and the duration of the wheal produced by the reverse technic, i. e., antigen first and sensitization later, and *D*, the duration of the edema following the wheal produced by the reverse technic.

minutes after its ingestion (reverse technic) showed the former to be from 20 to 50 per cent larger than the latter (chart 1).

The mechanism of the formation of the circumscribed edematous swelling and of the deep-seated nodular induration is not altogether clear. The reasons for the downward development of the latter reaction into the deeper part of the cutis and the subcutis are not altogether apparent. However, some of the other features of the lesions are more easily explainable. The hardness and the persistence of the reaction

were undoubtedly due to the progreessive neutralization of the slowly fixing reagins within the circumscribed area. The gradual diminution in the size of the reaction was more probably caused by a diminution in the quantity of the circulating antigen than by an exhaustion of the supply of available reagins. A more complete discussion of the mechanism involved in the formation and development of the wheal induced by the reverse technic, together with histologic studies of the lesion, will be the subject of a future report.

In summarizing the factors partially or wholly responsible for the peculiar development of the wheal induced by the reverse technic one may include (*1*) the presence of the antigen in the blood before sensitization; (*2*) the slow and difficult fixation of the reagins; (*3*) the refractoriness of the superficial capillaries; (*4*) the involvement of the deeper vessels, and (*5*) the progressive diminution of the antigen in the circulation.

REGRESSION OF ERYTHEMA

The fading of the erythema surrounding the wheals by the reverse technic began at the periphery and progressed centrally. When the clinical wheal had disappeared, the erythema on the lcoalized swelling gradually faded as the size of the swelling slowly diminished. The erythema was still faintly present when absorption of the localized edema was completed.

In the reactions characterized by the presence of a deep-seated nodule, the regression of the erythema was extremely slow. A pea-sized, faintly erythematous patch persisted after the induration had disappeared. The erythema, therefore, was the last feature of the reaction to go, taking sometimes as long as twenty-four hours to fade completely.

VARIATIONS IN WHEALS INDUCED BY REVERSE TECHNIC

Reactions produced in series with this technic on the same subject varied in size and intensity, according to the lapse of time after the ingestion of the antigen. A comparison of successive wheals produced at regular intervals of from thirty minutes to an hour or more showed that the early reactions progressively increase in size, activity and induration, while in those produced later there is a progressive diminution in their characteristics. The degree of the reaction was found to vary directly with the amount of antigen in the circulation.[3] Such a series of wheals produced in succession at regular intervals served, by their comparative sizes, to indicate the "tide" of the antigen in the blood stream (chart 2). As it rose the wheals became larger and as it fell the wheals became smaller.

The changes in the dimensions of the wheals were usually accompanied by a parallel variation in the size and the intensity of the sur-

rounding erythema, in the degree of the associated pruritus and in the size of the edematous induration following the reactions.

As the reactions late in the series gradually began to decrease in size, a point was finally reached when a fully developed wheal was only 2 or 3 mm. in diameter, with practically no surrounding erythema, no pruritus and little induration. This stage of wheal formation, usually observed eight or more hours after the ingestion of the excitant, was at times difficult to distinguish from the local cutaneous reaction resulting from the injection of serum. However, after observing many of these reactions, one was able to differentiate between them by the fact that the immunologic wheal came later, showed more hardness and activity and persisted longer than the serologic reaction.

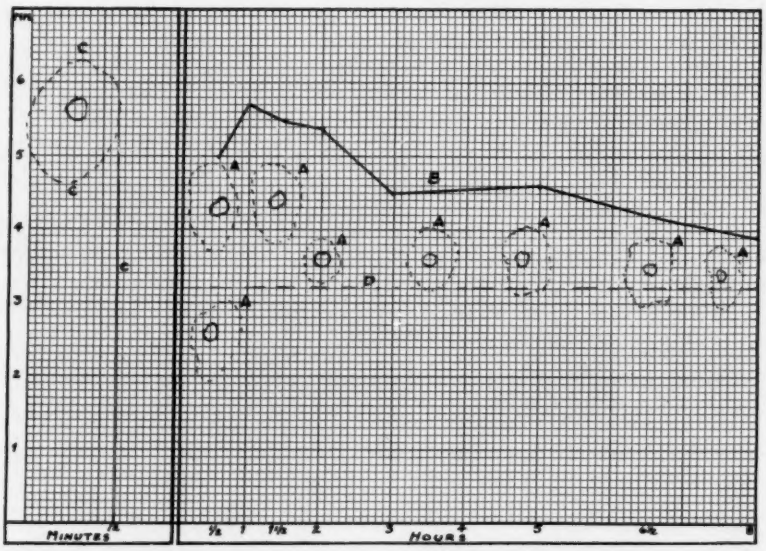

Chart 2.—The rise and fall of the tide of antigen in the circulation of a subject after the ingestion of forty peanuts, as traced by the reverse technic. *A* shows a series of wheals, each induced by the reverse technic at the specified time, for the first eight hours after the ingestion of the antigen; *B*, the curve based on the size of these wheals; *C*, the size and the time of onset of the wheal produced by the direct technic, i. e., sensitization first and antigen later, and *D*, the size of the wheal after the injection of the serum and before the ingestion of the antigen.

ADDITIONAL FACTORS INFLUENCING SIZE AND INTENSITY OF REACTION

1. *Factors Associated with the Serum.*—The size and degree of the reaction depended to a great extent on the antibody titer of the serum injected. The higher the reagin content of the serum, the larger

the wheal. The quantity of serum injected was a factor, although the size of the wheal was not necessarily in direct proportion to the amount of serum injected.

2. *Factors Associated with the Specific Offending Food.*—The quantity of the specific offending food ingested was a factor in determining the size and the intensity of the wheal. Cooking, roasting, heating and otherwise changing the antigen delayed, prevented or diminished the reaction.

3. *Factors Associated with the Experimental Subject.*—The best reactions were obtained when the antigen was eaten on an empty stomach, preferably in the morning. The presence of food or medicaments in the stomach before or immediately after the ingestion of the excitant affected the reaction in time of onset, size and intensity.[4]

The cutaneous site of the sensitizing injection was an important factor in the size and the intensity of the reaction. The most suitable sites were the flexor and the outer aspect of the arm. The forearm was occasionally used, the best site being the middle third of the flexor surface.

The ability to fix reagins in the skin and to absorb the specific offending food are variables which influence the size and the intensity of the wheals in different subjects. Atopic subjects as a group are poor subjects for this type of study, because of their diminished reagin-fixing power when passively sensitized.[5]

COMMENT

In previous reports on the production of wheals, Matthew Walzer and I showed that by the direct technic, consisting of local sensitization followed by the ingestion of the specific excitant, an immunologic wheal was produced which clinically and mechanically simulated the wheal of urticaria vulgaris.

The method of production of the immunologic wheal described in the present report differed from the direct technic in that the antigen was administered before passive sensitization was performed. The wheal, therefore, developed at a site which was bathed with the circulating antigen prior to the introduction of the sensitizing serum into the skin. Instead of a large, rapidly developing wheal of a few hours' duration, such as that produced by the direct technic, the wheal by the reverse technic was smaller and slower to develop and was characterized by a peculiar edematous swelling or a deep-seated nodular induration which persisted for many hours.

5. Walzer, M., and Bowman, K.: Passive Local Sensitization in Atopic Individuals, Proc. Soc. Exper. Biol. & Med. **28**:425, 1931.

The significance of this reaction does not lie in the fact that another type of wheal of internal origin has been produced experimentally. Of greater interest is the fact that such wheals, with their peculiar indurations, are often encountered clinically. They are not uncommon in many urticarial dermatoses whose mechanisms of formation are not definitely understood, such as the urticarias and the angioneurotic edemas of serum disease, the manifestations of drug hypersensitiveness and others of unknown origin. I do not mean to imply, however, that because the mechanism of the experimental wheal produced by the reverse technic is reaginic, the same mechanism exists in the previously mentioned urticarias. While it is true that antibodies, such as precipitins and reagins, have been reported in some cases of serologic disease and drug sensitiveness,[6] there is as yet no satisfactory evidence that such antibodies are responsible for these conditions.

Probably the most important single factor in the formation of the wheals by the reverse technic is that the antigen was in the circulation prior to the deposition of the reagins in the skin. It is apparently this reversal of the usual order of these forces that is responsible for this peculiar type of wheal reaction. Whether such a reverse relationship plays a part in the mechanisms of the aforementioned urticarias still remains to be determined. Since only the offending substances which cause these urticarias are known and the antibodies involved are still in doubt, it would be futile to theorize or speculate in this direction.

If such a simple change as a reversal of the order of the causative factors can produce such profound alterations in the type of the wheals as I have described, is it not possible that the time relationship of various immunologic factors plays an important role in other cutaneous lesions of an immunologic nature? It is not unlikely that the same causative factors in different sequences can produce different types of dermatologic lesions. This aspect of the mechanism of immunologic conditions has not been sufficiently emphasized. More study is needed to clarify these questions.

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6. Longcope, W. T., and Rackemann, F. M.: The Relation of Circulatory Antibodies to Serum Disease, J. Exper. Med. **26**:341, 1918. Cooke, R. A., and Spain, W. C.: Studies in Hypersensitiveness: XXXVI. Comparative Studies of Antibodies Occurring in Anaphylaxis, Serum Disease and Naturally Sensitive Man, J. Immunol. **17**:295, 1929. Hooker, S. B.: Human Hypersensitiveness to Different Proteins of Horse Serum, ibid. **8**:469, 1923. Tuft, L., and Ramsdell, S. G.: Antibody Studies in Serum Sickness: I. With Special Reference to the Prausnitz-Kustner Reaction, ibid. **16**:411, 1929. Vallery-Radot, P., and Blamoutier, P.: Sensibilisation au chloroplatinite de potassium, Bull. et mém. Soc. méd. d. hôp. de Paris **53**:222, 1929. Biberstein, H., and Fröhlich, H.: Weitere Beiträge zur Kenntnis der allergischen Dermatosen. Ueberempfindlichkeit gegen Milch, Arch. f. Dermat. u. Syph. **166**:101, 1932.

SUMMARY

A new type of experimental wheal of internal origin is reported. Its mechanism, although immunologic, differs from the one originally reported in that the antigen is ingested before local passive sensitization, a reversal of the usual technic.

The following important characteristics distinguish the wheal produced by the reverse technic from those produced by the usual technic: (*1*) the wheals produced by the reverse technic are relatively smaller; (*2*) they are of a single type, namely, one that develops at and includes the injected site, and (*3*) they manifest a peculiar circumscribed edema or indurated nodule as they start to recede.

The factors responsible for the formation of this type of wheal are: (*1*) the presence of circulatory antigen before sensitization, (*2*) the slow and difficult fixation of the reagins, (*3*) a refractoriness of the superficial capillaries, (*4*) the involvement of the deeper vessels and (*5*) the progressive diminution in the quantity of antigen in the blood.

Factors which influenced the size and the intensity of the wheal were grouped under three headings: (*1*) cutaneous factors, (*2*) food factors and (*3*) factors associated with the experimental subject.

This type of wheal is seen clinically in many urticarias and angioneurotic edemas of serum diseases, in drug hypersensitiveness and in many chronic and recurrent urticarias of unknown origin. Since reagins and other causative antibodies have not been satisfactorily demonstrated in these urticarial dermatoses, there is as yet no justification for attributing such a mechanism to them. The possibility of a reverse antigen-antibody relataionship, however, must be entertained in this connection.

If a reversal of the time relationship can produce such profound changes in the type of wheal produced, it seems possible that this factor may play an important role in influencing other immunologic cutaneous manifestations.

CHROMOBLASTOMYCOSIS CAUSED BY A FUNGUS OF THE GENUS HORMODENDRON

J. M. GOMES, M.D.
SÃO PAULO, BRAZIL

It is my privilege to report a rare mycologic infection. It is fortunately possible to present all the data to prove the course of the infection. These include the details of the original trauma, the date of the initial lesion, the interval between the penetration of the fungus and the first clinical manifestations, the results of experimentation with animals and of laboratory tests and, finally, the demonstration of the parasite on the tree which caused the wound.

REPORT OF A CASE

E. M., a white man aged 51, a Brazilian railroad employee, was cutting limbs from a eucalyptus tree when a small branch fell on the dorsum of his hand and wounded it. Treatment of the wound consisted of daily washing with solution of hydrogen peroxide and application of an ointment. The wound healed in one month. Eight days later vesicles began to appear on the scar. These ruptured, discharged a serosanguinolent fluid and formed crusts. The lesion was sharply defined, with a verrucous surface, and was elevated at its highest point 0.5 cm. above the normal skin. There was no exuberant vegetation, as seen in some other eruptions due to fungi. It is possible, however, that this picture represented only the initial stage of the process.

The eruption caused no subjective symptoms. After disinfection with iodine and alcohol, a biopsy specimen was removed for culture and microscopic examination. The entire surface of the lesion was removed, leaving a smooth, glistening surface like scar tissue, except for a small area on the ulnar border and a few points of infiltration in the remaining area. The patient was unable to close his fingers entirely two months after complete healing.

A roentgenogram of the hand was made to throw possible light on this disturbance of function. The report by Drs. C. Villaça and P. de A. Toledo revealed "osteoporosis affecting the bases of the first and second phalanges of the left hand and decrease in the width of the articular spaces. There were no focal lesions of bone."

Cultures.—Fragments of tissue were inoculated in ten test tubes containing Sabouraud's medium. Another portion was fixed in solution of formaldehyde for histologic examination. The tubes were kept at room temperature. On the fourth day there were signs of growth from one of the pieces of tissue. Two days later all the pieces of tissue showed growth. At the outset this was white and radiating. The center first changed to bright green and with further growth became duller, had a dusty appearance and developed rapidly in various culture mediums. It did not liquefy gelatin, but coagulated serum was dissolved, and

From the Institute of Hygiene, University of São Paulo.

round pigmented bodies about 6 microns in diameter were noted. At the end of a month in Sabouraud's medium there were bundles of whitish hyphae—possibly degenerated forms. The rest of the colony was grayish green.

Histologic Picture.—The most important feature microscopically was the presence of isolated vesicles in the epidermis. In other areas the papillae were nearly uncovered and presented the papillomatous aspect characteristic of blastomycosis. There was marked fibrous reaction. The blood vessels were numerous and dilated. The parasite was situated in the cutis between microscopic abscesses consisting predominantly of lymphocytes and epithelioid cells. The parasites occurred individually or in groups. They were round or oval and showed a double-contoured membrane. The larger ones were from 5 to 6 microns in diameter.

Fig. 1.—Chromoblastomycosis.

They were surrounded by a yellow mass which did not stain and which at times agglutinated two or more spores. Although the parasites were situated exclusively in the skin, the bones of the hand were apparently affected by diffusible substances resulting from metabolism of the fungus and causing an extensive zone of osteoporosis.

CLASSIFICATION OF THE FUNGUS

The fungus grown in this case belongs to the genus Hormodendron (Bonorden 1851), as shown by the septate, branched hyphae, horizontally situated, and the septate sporophores, vertically placed with no dilatation at the apex, more or less branched and bearing chains of acrogenous spores which were unicellular, oval or rounded.

In the tissues the fungus consisted of round or oval cells, with a double-contoured membrane 3 or 4 microns in diameter. It was yellow and appeared in groups between the infiltrating cells, which were surrounded by a yellowish brown pigment.

Up to the present only two fungi have been known to cause chromoblastomycosis, namely, Phialophora verrucosa Thaxter, observed in the United States in 1915 [1] and in Uruguay in 1934,[2] and Trichosporum (or Acrotheca) pedrosoi, studied for the first time in Sao Paulo, Brazil, by Pedroso and me in 1920 [3] but known by the first author since 1911. Today many dozens of cases of chromoblastomycosis caused by these fungi have been observed in various parts of the world.

In many countries a disease similar to chromoblastomycosis has been reported. However, no etiologic agent has been identified. It has been merely surmised that the condition was caused by Hormodendron.

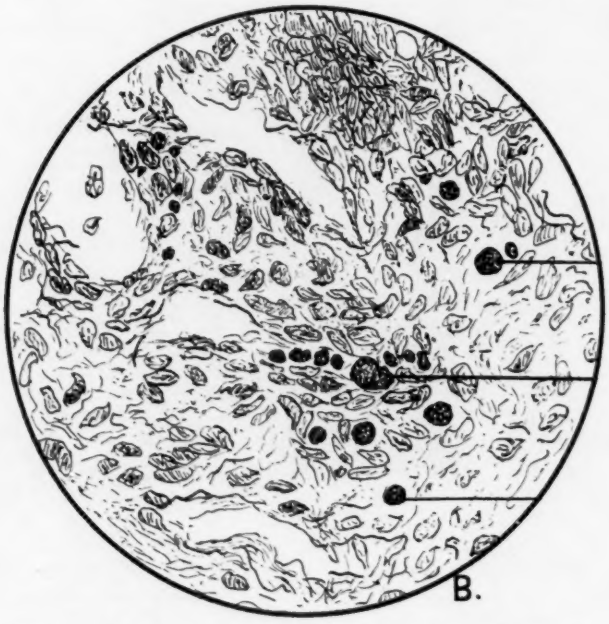

Fig. 2.—Microscopic section from lesion on the hand, showing groups of parasites.

The fungus described in this paper is the third species of Hormodendron which has been proved to cause chromoblastomycosis. In my case, however, there were no features which allowed a specific classification. The only well observed pathogenic hormodendron which causes superficial lesions is Hormodendron fontoynonti. This produces no deep lesions but merely dermatomycosis or parasitic achromia of the head and the neck.

1. Medlar, E. M.: J. M. Research **32**:507, 1915.
2. MacKinnon, J. E.: Arch. urug. de med., cir. y especialid. **5**:201, 1934.
3. Pedroso, A., and Gomes, J. M.: Brasil-med. **24**:105, 1920.

INOCULATIONS OF ANIMALS

On Oct. 17, 1935, a loop full of a two weeks old culture was emulsified in physiologic solution of sodium chloride and inoculated intradermally in one rabbit, two guinea pigs and one rat. Inoculation of the rabbit gave the following results: On October 18 the fungus was absorbed, and roughness of the skin was noted. On October 19 there was local congestion. On October 21 the skin was dry and dull colored. On October 22 a small nodule appeared. This diminished on October 23 and disappeared on November 5. By November 25 the rabbit was extremely thin. At about 2 cm. from the point of insertion of the needle

Fig. 3.—Culture of Hormodendron, showing mycelium, sporophores and spores (oil immersion).

a wart nearly 1 cm. high could be seen (fig. 4). On November 26 the wart and the surrounding tissue were removed for histologic examination. By November 28 the operative wound had healed and another wart seemed to be growing at the side.

Intradermal inoculation of the two guinea pigs showed the following results: On October 18 the fungus was absorbed, and roughness of the skin was noted. On October 19 nodules appeared on both guinea pigs. By October 21 the left inguinal ganglions were swollen. By October 23 the nodules had decreased in size, and examination on October 29 showed the nodules on one of the guinea pigs to form only a thread. The ganglions were still swollen. On November 3 the two guinea pigs died. Two days previously they had seemed well. Autopsy showed congestion of nearly all the organs and milky plaques on the

pericardium. The examination of the ganglions did not show anything of importance. A smear from a small dark nodule at the point of inoculation showed great numbers of round brownish parasitic cells (spores?). Some of these showed protoplasmic projections forming a new cell, which adhered to the mother cell by a small septum. Some cells had two filamentous projections.

Inoculation of the rat showed the following results: On October 18 the fungus was absorbed, and there was roughness of the skin. On October 19 shallow ulcers were present, and there was a surrounding area of congestion. On October 21 the ulcers had healed, and nodules the size of a lentil were in evidence. On October 22 the nodules had enlarged, and a reaction of the ganglions was noticeable. This had

Fig. 4.—Verrucous lesion in rabbit on thirty-eighth day after inoculation.

disappeared by November 5. On November 25 a verrucous reaction was present. Examination on November 28 showed that the nodule remained with distinct verrucosis. The animal was in good condition.

On Nov. 8, 1935, two guinea pigs were inoculated intradermally. By November 21 nodules were present, and a mass of fungi filled the orifices left by the needle. On November 25 one of the guinea pigs died, emaciated.

HISTOLOGIC EXAMINATION OF WART IN GUINEA PIG

Sections were stained with hematoxylin and eosin. I observed blocks of an amorphous, light brown substance, a result of the destruction of the inoculated culture, and in the center numerous parasitic cells, round or oval and of varying size, usually about 1 or 2 microns in diameter. The spores had a thickened, deeply pigmented membrane and were similar in every way to those observed in the human infection. The fungus, with its coat of pigment, occupied cavities closed by the

marked proliferation of epithelioid cells, which could be seen everywhere invaginating the remainder of the inoculated material or forming empty spaces. The connective tissue took part in the irritative process, and its hypertrophied loops spread between the epithelial structures. A few blood vessels were dilated. Some of the grooves of the villosities were protected by hypertrophied horny tissue.

COMMENT

Of the guinea pigs, three died on the sixteenth day after the inoculation, with multiple congestive phenomena. There was no granulomatous formation or any abscess. The rabbit and the rat showed a warty reaction on approximately the thirty-eighth day. The warty lesion on my patient was noted after an equivalent interval. The fungus seemed to act through toxic substances produced by its destruction.

I have been unable to find any report in the literature on the experimental reproduction of chromoblastomycosis. I published a study in collaboration with Pessoa,[4] relating to our experiences with Trichosporum pedrosoi. It referred to inoculations in dogs, rabbits and monkeys. We observed typical warty formations on rabbits and dogs, the lesions appearing at places distant from the point of inoculation. We made reinoculations in all cases, and one of our conclusions was that to attain a positive result it was necessary to sensitize the animals.

Today, after further consideration of the facts, it seems to me that, aside from the relative susceptibility of each species of animal, the factor that determined the positive result of the experiments was perhaps the method chosen, i. e., intradermal inoculation. This was one of the points Pessoa and I had planned to investigate. The affinity of the fungus for cutaneous tissues, even when carried to a distant zone, favored this idea.

It should be noted that the toxic action of Hormodendron is much more marked than that of Trichosporum, which seems almost totally lacking in toxicity. It was relatively easy with Hormodendron to produce lesions on animals other than guinea pigs, which are especially susceptible to this fungus.

Examination of the branch of the eucalyptus tree which had wounded the patient showed yellowish green spots on green or dried branches. A scraping from the colonies showed two types of sporophores, simple round or oval spores and some segmented spores which seemed related to Hormodendron and Cladosporium. This material was placed in several tubes filled with Sabouraud's medium, and six typical colonies of Hormodendron were isolated.

4. Gomes, J. M., and Pessoa, S. B.: Brasil-med. **43**:255, 1929.

SUMMARY

A case of chromoblastomycosis, proved to be caused by a hitherto undescribed species of hormodendron, is reported. Proof is presented that this fungus, which was shown to be parasitic on eucalyptus trees, became pathogenic for man and for laboratory animals.

My colleagues at the Institute of Hygiene, University of São Paulo, assisted in these experiments. Dr. Belfort de Mattos made the drawings.

ALBUMINURIA IN ASSOCIATION WITH SCABIES

REVIEW OF THE LITERATURE AND REPORT OF URINALYSES IN TWO HUNDRED AND SIXTEEN CASES

HENRY D. NILES, M.D.
NEW YORK

The association of albuminuria with scabies was discussed frequently in the French and the German literature several years ago. Some authors claimed that it was common, while others denied its existence. As I have failed to find any recent articles on this subject, although it is mentioned in several of the standard textbooks of dermatology, I consider an attempt to settle this question indicated.

REVIEW OF THE LITERATURE

In a series of 1,300 Japanese patients (the author did not state how many had scabies) Scheube [1] found 17 instances of albuminuria which, according to his belief, were due to scabies. Boyer [2] described 5 cases in which albuminuria appeared at the onset of scabies, before any treatment was started, and disappeared when the scabies was cured.

There are many reports of albuminuria caused by various drugs used in the treatment of scabies. Nine of 124 patients with scabies who were treated by Unna [3] with styrax showed albuminuria. Kémadjian-Mihran [4] examined the urine of 50 patients with scabies who had been rubbed with black soap and Helmerich's pomade and, with a sensitive test, found albuminuria in 30. Spiegler [5] and Hübner [6] found albu-

From the Division of Dermatology and Syphilology, the Skin and Cancer Unit of the New York Post-Graduate Medical School and Hospital, Columbia University, Dr. George M. MacKee, Director.

1. Scheube, B.: Hautkrankheiten und Nephritis, Centralbl. f. klin. Med. **4**: 145, 1883.

2. Boyer, J.: De l'albuminurie liée aux irritations cutanées, Thesis, Lyon, no. 178, 1883.

3. Unna, P. G.: Albuminurie während der Stryraxeinreibungen Krätziger, Virchows Arch. f. path. Anat. **74**:424, 1878.

4. Kémadjian-Mihran: De l'albuminurie consécutive aux excitations cutanées, Thesis, Paris, no. 341, 1882.

5. Spiegler, E.: Ueber die sogenannte physiologische Albuminurie, Wien. med. Bl. **17**:553, 1894; Eine empfindliche Reaction auf Eiwiss im Harne, Wien. klin. Wchnschr. **5**:26, 1892.

6. Hübner, H.: Ueber Albuminurie bei Scabies, Ztschr. f. klin. Med. **55**: 549, 1924.

minuria in all patients with scabies whose urine was examined, but they used extremely sensitive tests, so that their results probably indicated mere physiologic albuminuria. Several authors have found that even simple friction of the skin without any irritating drug may in some patients produce albuminuria.

Before starting treatment, Nicolas and Jambon [7] examined the urine of 101 patients with scabies and found albuminuria in 16. They followed a uniform method of examination which was not delicate enough to detect simple physiologic albuminuria. In their review of the literature, they found 31 other cases which, with their 16, made a total of 47 cases of what they regarded as albuminuria definitely due to scabies. They stated that the occurrence of albuminuria in the course of dermatoses has been attributed to suppression of normal cutaneous functions, reflex vasomotor disturbances of the renal circulation and toxic-infectious nephritis due to the introduction into the blood stream of micro-organisms or the absorption of cellular débris from the cutaneous lesions. Their conclusions were that scabies is frequently accompanied with albuminuria which is dependent in its appearance, duration and disappearance on the cutaneous lesions which have given it birth; and that this albuminuria can present itself clinically in two principal types: (1) simple albuminuria, unaccompanied with any subjective or objective symptoms, disappearing after treatment of the scabies and perhaps due to slight nephritis, and (2) true nephritis with classic symptoms, which may heal with the scabies or persist after the healing of the dermatosis and disappear of its own accord.

Nicolas and Jambon's findings were confirmed by Mathieu,[8] Lépine [9] and Lesieur.[10] A year later Tchumakow [11] analyzed the urine of 90 patients with scabies and 10 with eczema and found albuminuria in 10. Of these 10 patients, 1 had eczema and 9 had scabies. Boas [12] and Marzocchi,[13] on the other hand, reported different results. The former

7. Nicolas, J., and Jambon, A.: L'albuminurie chez les galeux, Ann. de dermat. et syph. **9**:65, 1908.

8. Mathieu, J.: Contribution à l'étude l'albuminurie au cours de la gale, Thèsis, Lyon, 1907.

9. Lépine, R.: Revue critique sur quelques points de la pathogénie de l'albuminurie, Rev. mens. de méd. et de chir. **4**:252, 1880.

10. Lesieur, quoted by Uebersfeld.[14]

11. Tchumakow: Albuminurie dans la gale, Rev. russe d. mal. cutan. et vén. **17**:169, 1909.

12. Boas, H.: Om albuminure ved scabeis, Hospitalstid. **1**:1401 (Dec. 9) 1908.

13. Marzocchi, V.: Intorno alla questione dell'albuminuria negli scabbiosi, Riv. d'ig. e san. pubb. **22**:713, 1911; abstracted, Ann. de dermat. et syph. **4**:247, 1913.

author examined the urine of 1,010 patients with scabies and found only 13 instances of albuminuria, 6 of which were due to causes other than scabies. He expressed the belief that in any 1,000 patients one would find 7 instances of albuminuria and that scabies does not cause specific albuminuria. Marzocchi shared Boas' skepticism, as he examined the urine of 51 patients with scabies and found albuminuria in only 1.

At Nicolas's request, Uebersfeld [14] checked his results and found albuminuria in 17 of 260 patients with scabies and in only 2 of 110 patients with other cutaneous diseases. She examined the urine of every patient before starting any treatment, and the diagnosis of scabies was always confirmed by the finding of acarids. She made successive urinalyses for half of the patients under treatment, testing the urine of 130 patients five times, before all treatment and after each of the four rubs. She found that albuminuria was particularly frequent in cases of prolonged and neglected scabies and in children and adolescents. The albuminuria appeared suddenly without symptoms, disappeared only with treatment of the parasite and became progressively less after each rub.

Hayman and Fay [15] examined the urine of 49 patients with scabies, of whom 35 had received no treatment and 14 only a small amount, and found albuminuria in 10 (20.4 per cent). Of these 10, 6 (17.1 per cent) were from the group of 35 untreated patients and 4 (28.5 per cent) from the 14 who had had treatment. The authors expressed the belief that the cause of albuminuria in cases of scabies is some vasomotor disturbance in the kidneys of reflex origin and that the albuminuria of scabies is functional and dependent on some predisposing renal irritability. Bagnoli [16] reported an incidence of albuminuria of 6.6 per cent in cases of scabies but did not state the number of patients examined.

In spite of the many positive reports, it appeared to me to be extremely unlikely that a superficial parasitic disease like scabies could cause an internal complication, such as nephritis, and I was inclined to believe that in the recorded instances the coincidence of these two conditions was probably due either to systemic absorption of the external applications employed or to preexisting nephritis from some other cause. In a review of the literature since Bagnoli's article, I could find no report of urinalysis in a series of cases of scabies.

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14. Uebersfeld, H.: Nouvelle contribution à l'étude de l'albuminurie scabiéique, Thesis, Lyon, no. 77, 1916.

15. Hayman, J. M., Jr., and Fay, T. S.: Studies on Albuminuria and Eosinophilia in Scabies, Arch. Dermat. & Syph. **3**:32 (Jan.) 1921.

16. Bagnoli, N.: Sul comportamento delle cellule eosinofile e dell'albuminuria negli scabbiosi, Gior. ital. d. mal. ven. **64**:189, 1923.

REPORT OF CASES

A complete routine examination was made of the urine of 216 (118 male and 98 female) patients with scabies at the Skin and Cancer Unit of the New York Post-Graduate Medical School and Hospital from May 1935 to July 1937. Most of these patients were from the lower economic level, and their ages ranged from 19 months to 78 years (average age, 28.47 years).

In order to eliminate the possibility of renal damage from the medication prescribed, the urine almost always was examined at the time of the first visit. As few of the patients had had any treatment before coming to the clinic, the probability that albuminuria in any case was due to therapy could be practically eliminated. The common boiling and acetic acid test for albumin was employed in the entire series. The precipitate was not heavy in any of the specimens and in most was faint. Only 16 (7.4 per cent) of the 216 patients showed even the slightest trace of albumin in the urine on one examination. Ten of these were females and 6 males. The ages of the female patients ranged from 6 to 50 years (average age, 21.6 years) and those of the male patients from 15 to 39 years (average age, 22.33 years). Although the average age of the two sexes was practically the same, the average age of patients of both sexes who showed albuminuria was 6.5 years less than that of the whole group of patients with scabies. This is in agreement with Uebersfeld's finding that albuminuria occurs more frequently in young patients with scabies, but it might be explained by the greater frequency of albuminuria in normal children than in adults, which has been reported by several authors. Although there were more male than female patients in the entire group, almost twice as many female patients had albuminuria. Lauener [17] and Calvin, Isaacs and Meyer [18] have shown that in normal children benign albuminuria is more frequent in girls than in boys. The latter authors found albuminuria about twice as often in girls.

The average duration of scabies in the patients with albuminuria was one and eighty-four hundredths and one and ninety-five hundredths months in the entire series. This does not support the contention of some authors that albuminuria is more frequent with neglected scabies of long duration.

None of the 216 patients had casts. Six patients showed varying amounts of sugar; 20, indican, and 27, pus cells. It can be seen from

17. Lauener, P.: Ueber die gutartige Albuminurie bei Schulkindern, Schweiz. med. Wchnschr. **52**:1170 (Dec. 21) 1922.

18. Calvin, J. K.; Isaacs, B. L., and Meyer, J.: Albuminuria in Children, J. A. M. A. **86**:1821 (June 12) 1926.

these figures that there were no more patients with albuminuria than with other abnormal urinary findings. It was my intention to repeat the urinalysis in all cases in which there was albuminuria after the disappearance of the eruption and to give a complete medical examination and study the history of all patients who continued to show albumin, to determine whether albuminuria had been present before the occurrence of the scabies and to what it was due. These 16 patients were many times requested by mail to return to the clinic for this examination, but only 7 had returned at the time this report was written.

Of the 7 patients for whom reexamination was possible, 4 failed to show albumin after the disappearance of the scabies, but in the other 3 albuminuria persisted for many months after the eruption had disappeared. The first 4 cases seemed to support the contention of Nicolas and Jambon and of Uebersfeld that there is a true albuminuria of scabies which appears with this disease and disappears with its healing, although the positive result of one examination may have been due to functional, orthostatic or other causes. A second examination, even during the active stage of the scabies, might have given negative results. I had hoped to make repeated urinalyses during the course of the disease, as Uebersfeld did, but unfortunately this was not possible, because many of the patients did not return after their first visit and others not until their scabies had almost or entirely healed. In the 3 patients whose albuminuria continued after the disappearance of the scabies, there probably was no relation between the two conditions, although they may furnish examples of the rare complication described by some authors as persistent albuminuria following scabies. A complete medical examination of 1 of these patients failed to show the cause of his persistent albuminuria. It was impossible to obtain such an examination of the other 2.

That this incidence of albuminuria of 7.4 per cent on one examination in a series of 216 patients suffering from scabies is not necessarily of any significance is shown by the fact that it is no higher than the percentage found in some reports of routine urinalyses of normal subjects. Leube [19] found that of 119 healthy soldiers, 4 per cent had albumin in the urine on rising in the morning and 12 per cent after marching. Lee [20] examined the urine of 662 members of the freshman class at Harvard University and found that 34 subjects (5.1 per cent)

19. Leube, W. O.: Ueber die Ausscheidung von Eiweiss im Harn, Virchows Arch. f. path. Anat. **72**:145, 1878.

20. Lee, R. I.: Blood Pressure Determinations, Urinary Findings, and Differential Blood Counts in a Group of Six Hundred and Sixty-Two Young Male Adults, Boston M. & S. J. **173**:541, 1915.

had albuminuria. MacLean,[21] in a study of 60,000 apparently healthy recruits in the British army in France during the World War, found albumin in 5 per cent of early morning specimens. In this same group after exercise, albumin was demonstrated in from 7 to 14 per cent. Lauener found albuminuria in 6.7 per cent of 1,246 children between the ages of 6 and 7, in 27 per cent of 1,350 children from 10 to 11 and in 38 per cent of 2,481 children from 15 to 16. Jervell [22] reported an incidence of 9.99 per cent of functional albuminuria. Ashburn,[23] in an investigation of West Point cadets, found that the incidence of benign albuminuria varied greatly in different years, at times being as high as 16 per cent. Diehl and McKinlay [24] examined 20,000 male students at the University of Minnesota and found that 5.32 per cent showed albuminuria on one examination.

SUMMARY AND CONCLUSIONS

The literature on albuminuria in scabies, the theories as to its causation and the reports on the occurrence of albuminuria in normal persons are reviewed. Urinalyses of 216 patients with scabies at the Skin and Cancer Unit of the New York Post-Graduate Medical School and Hospital showed albuminuria in 16 (7.4 per cent). Ten of these were females and 6 males. The average age of the patients with albuminuria was 6.5 years less than that of the whole group, and the duration of their scabies was slightly shorter. Reexamination of 7 of the 16 patients who had had albuminuria showed that the albumin persisted in 3 and disappeared in 4.

Nicolas and Jambon found an incidence of albuminuria in 15.84 per cent in 101 cases of scabies, and albuminuria occurred in 5.15 per cent of Uebersfeld's 260 cases. Because of their findings those authors expressed belief in the existence of an albuminuria specifically due to scabies. The incidence of 7.4 per cent in my 216 cases leads me to a different conclusion, for the following reasons: 1. This percentage is no higher than that reported in some urinalyses of normal subjects. 2. In this series albuminuria was more frequent in young and in female patients than in the whole group. 3. In 3 of the 7 cases in which the urine contained albumin reexamination showed albumin long after the

21. MacLean, H.: Albuminuria and War Nephritis Among British Troops in France, Medical Research Committee, Special Report Series, no. 43, London, His Majesty's Stationery Office, 1919.

22. Jervell, O.: Functional Albuminuria, Norsk mag. f. lægevidensk. **89**:1189 (Dec.) 1928.

23. Ashburn, P. M.: Epidemic of Albuminuria, J. A. M. A. **90**:535 (Feb. 18) 1928.

24. Diehl, H. S., and McKinlay, C. A.: Albuminuria in College Men, Arch Int. Med. **49**:45 (Jan.) 1932.

disappearance of the scabies, so that there was probably no connection between the two conditions. 4. The presence of albuminuria on a single examination is of little importance, as it may be due to purely functional causes. 5. Albuminuria was not more frequent than other abnormal urinary findings in this group of patients. 6. The amount of albumin in these 16 cases varied from a "very faint trace" to a "trace" and was never greater than that which at times may be seen in cases of benign transitory albuminuria. In no specimen was there a heavy precipitate.

After careful study of the literature and observation of my patients, I am not convinced of the existence of an albuminuria specifically caused by scabies and consider that the presence of albuminuria in some patients with scabies is an accidental finding and that there is no causal relation between the two conditions.

114 East Fifty-Fourth Street.

A CASE OF INHERITED AINHUM-LIKE HYPERKERATOSIS

RICHARD L. SUTTON JR., M.D.
Instructor in Dermatology, University of Kansas School of Medicine
KANSAS CITY, MO.

A white boy 3½ years old was presented at my clinic in the University of Kansas Hospital in August 1937 because of an acute inflammation of the skin, which I diagnosed as Engman's infectious eczematoid dermatitis. This healed in due time without event.

The condition of the feet was not a complaint, but it had features which merit description and interpretation.

The upper panel in the figure shows one great toe of the mother (*A*) and both great toes of the boy (*B*). Underlying the interphalangeal joints of both great toes of mother and son were transversely grooved hyperkeratoses. These calluses were circumscribed but faded into the normal skin distally, proximally and on both sides. The grooves were creases, with plane sides and sharp angles within their depths. They were exactly like the longitudinal, calloused plantar grooves seen in the feet of women who wear too narrow shoes, which by forcibly approximating the heads of the first and the fifth metatarsal bone produce folds in the skin.

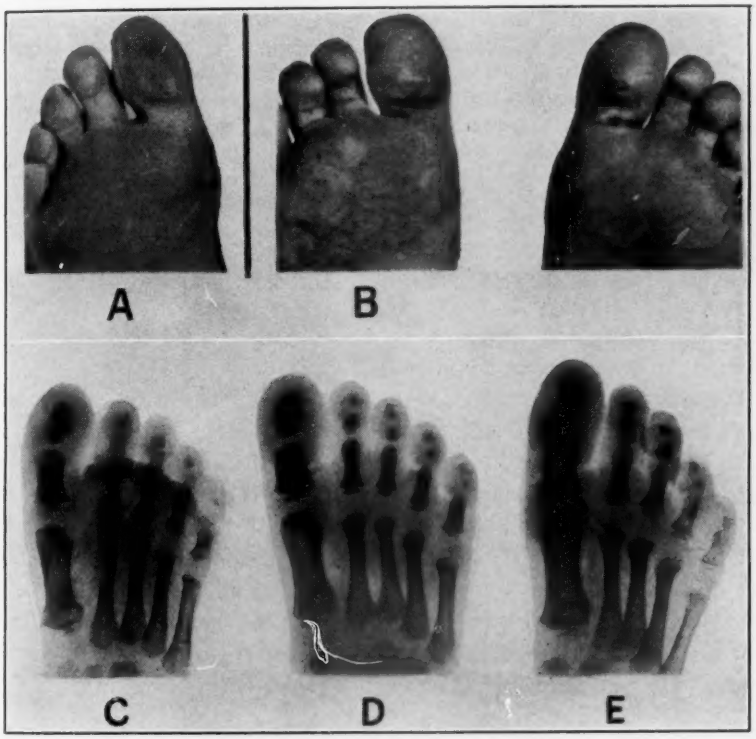
The lesions of the child were deeper than the mother's. They had been fissured and inflamed in the summer but were not inflamed at the time of examination. They had been observed in the child for the first time in 1937. They became inflamed when he went barefooted and healed when shoes were worn. The mother had had identical trouble in her youth: When she went barefooted in the summer, her great toes became fissured and inflamed underneath; and when she put on shoes in the fall, with the advent of cooler weather, the inflammation disappeared.

No other toe and no finger of the mother or the child was involved. No other area of hyperkeratosis was visible on the palms or the soles. The child had no brothers or sisters. The mother's brothers and sisters, she said, did not possess the anomaly, nor did her parents. The hair, the teeth, the nails, the eyes and the skin of the mother and the child were free from deformity.

Histologic examination was not permitted.

Dr. Ralph E. Miller, orthopedic consultant, before roentgenograms were made, found no externally discernible explanation in the musculature or the skeleton. Calling the lesions "congenital cutaneous clefts," he said that he had not seen similar lesions before.

Dr. Galen Tice, roentgenologist, reported that the bony texture and development of both feet were normal except in the great toe. The distal phalanx of the great toe was approximately 25 per cent shorter



The upper panel shows, *A*, one of the mother's great toes and, *B*, the great toes of the patient, her 3½ year old son. In the lower panel are roentgenographic studies of the feet of three children of approximately the same age. *C* shows the foot of a normal boy aged 3 years. *D* is the foot of the patient, aged 3½ years, showing the anomalous shortness of the terminal phalanx of the great toe. The bony lesion is bilaterally symmetric. *E* is the foot of a normal boy aged 4 years.

than normal, and the terminal cancellous tuft was absent. He stated that he had compared the plates with those of other children of approximately the same age and determined that there was a definite lack of development of the terminal phalanx of each first toe.

The lower panel in the figure shows (*D*) the roentgenogram of the boy's foot as compared with (*C*) that of a boy 6 months younger and (*E*) that of a boy 6 months older.

Hyde and Montgomery [1] described ainhum as follows:

> This disease was described first by Clark in 1830, since which time the literature of the disease has increased annually. It is an affection of the colored races chiefly, especially of the negroes of the West African Coast. It has been recognized in a few cases in white subjects. . . . Ainhum affects the smaller digits, chiefly the little toe, but also other toes and fingers. . . . The onset is by the development of a furrow or shallow groove on the plantar face of the toe or palmar aspect of the finger near the digito-plantar or digito-palmar web. This furrow gradually deepens and spreads in a circumlinear direction until the digit is girdled by a constricting and indurated ring in the form of a superficial depressed gutter. The segmented portion of the digit becomes swollen, in consequence of the constriction, to twice or several times its normal size, and in time, usually in the course of two to ten years, the segmented part, at first resembling a small potato attached to a slender pedicle, drops from its original attachments.

In my case the condition had not progressed far and was promptly relieved when shoes were worn. If the boy were an African aboriginal and lived barefooted, his trouble would surely progress and might terminate in spontaneous amputation.

Wellman [2] reviewed the etiologic theories and discarded these: Zambaco's hypothesis of causation by leprosy; da Silva Lima's belief that the disease is due to injury, for it usually occurs in Negroes who wear shoes; Scheube's suggestion that trophoneurosis plays a part (accepted by scholars so astute as Stelwagon and Gaskill [3]); Corre and Despetits' explanation of its origin in circumscribed scleroderma (to which Acton [4] gave credence); Proust's idea that the amputations are congenital, spontaneous amputations, which are not limited to the phalanges and are present at birth; and the theory that it is a matter of self mutilation with rings or strings. Manson [5] observed:

> If we examine the under surface of the joint flexures of the toes in many individuals of this [Negro] race, even in those not affected with ainhum, we often find the skin, particularly at the proximal joint of the little toe, thick, rough, scaling and sometimes even ulcerated.

Wellman concluded that the groove is a cicatrix.

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1. Hyde, J. N., and Montgomery, F. H.: Diseases of the Skin, ed. 7, Philadelphia, Lea & Febiger, 1904, p. 608.

2. Wellman, F. C.: A Criticism of Some of the Theories Regarding the Etiology of Goundou and Ainhum, J. A. M. A. **46**:636 (March 3) 1906.

3. Stelwagon, H. W., and Gaskill, H. K.: Diseases of the Skin, ed. 9, Philadelphia, W. B. Saunders Company, 1921, p. 656.

4. Acton, H. W.: Ainhum, a Band Scleroderma, Indian J. M. Research **15**: 1085, 1928.

5. Manson, quoted by Wellman.[2]

Wigley [6] described a case in which hyperkeratosis of the palms and the soles appeared when the patient was 3 months of age and spontaneous amputation occurred ten years later.

Not taking space to review the literature in detail, since that was well done by Bloom and Newman [7] in 1933 and again, briefly, by Horowitz and Tunick,[8] I quote the preceding authorities with the intention of showing that there is no general agreement as to the cause of ainhum. It is plain that the same cause has not been operative in every reported case of spontaneous amputation of a digit. It is likely that leprosy has caused some; artificial rings or bands may have caused a few; bandlike scleroderma may reasonably be supposed to have surrounded a toe, for it may appear anywhere; repeated injury might conceivably produce scarring, ischemia and amputation; sclerodactylia and Raynaud's phenomenon account for other cases, and in still others, such as Wigley's, a congenital ectodermal deformity was the important factor. Keratoma hereditaria mutilans [9] is another possibility.

Any means by which a digit may be rendered bloodless can produce spontaneous amputation. One must keep in mind the mechanical restrictions on the supply of blood to the toes and the fingers, which, in the presence of any pathologic state of the digit, is relatively precarious.

I believe it improper to include under the name ainhum all cases of digital amputation or even of amputations associated with encircling bands. If the cause is leprosy, the amputation is not ainhum. If the cause is scleroderma encircling a finger, the result is still scleroderma. I would limit the application of the name ainhum to conditions which meet the description of Hyde and Montgomery.[1] My case is an example of the disease in its early stage. The transverse plantar folds were not caused by constriction by shoes but were relieved by the wearing of shoes; yet the folds were like the longitudinal grooves caused by the wearing of narrow shoes.

Bloom and Newman [7] reported a case in which the little toe of a Negro was involved, as is characteristic. They said, "The pathologic process is a mechanical one produced by a fibrotic constriction which is induced by some previous mechanical or infectious injury."

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6. Wigley, J. E. M.: A Case of Hyperkeratosis Palmaris et Plantaris Associated with Ainhum-Like Constriction of the Fingers, Brit. J. Dermat. **41**:188 (May) 1929.

7. Bloom, D., and Newman, B.: Ainhum, Arch. Dermat. & Syph. **27**:783 (May) 1933.

8. Horowitz, M. T., and Tunick, I.: Ainhum: Report of Six Cases in New York, Arch. Dermat. & Syph. **36**:1058 (Nov.) 1937.

9. Ormsby, O. S.: Diseases of the Skin, ed. 5, Philadelphia, Lea & Febiger, 1937, p. 497. Vohwinkel, K. H.: Keratoma Hereditaria Mutilans, Arch. f. Dermat. u. Syph. **158**:354, 1929.

I believe the mechanical process, vague in previously reported cases, was plain enough in my case. The unusually short phalanx did not properly apply weight to the pad of the toe. Weight was borne on the crease instead of on the pad. A callus developing on the crease is mechanically different from an ordinary callus. The effect may be pictured in a paper tube: The paper is the analogue of the digital skin, and the hole, that of the space through which bones, tendons and blood vessels pass. One may compress the tube within elastic limits without greatly altering the cross-sectional area of the hole; but the moment an abrupt transverse crease appears, the tube will bend, and its cross-sectional area will be diminished even to zero. When my patient was barefooted, his toes were free to bend; when they bent at the crease of a callus, they became sore; the callus overlay the crease because of the short phalanges; the wearing of shoes kept the toes from bending and so allowed the sore toes to heal.

Roentgenograms in cases of more advanced ainhum have shown destruction and resolution of phalanges but could not reveal evidence of abnormal shortness, if that was present as an etiologic factor, simply because of the late stage in which the condition was observed. The inheritance of short phalanges such as may make ainhum sometimes hereditary is noteworthy but not astonishing. In fact, the inheritance of such a physical character is more readily comprehensible than the inheritance of bandlike scleroderma or trophoneurosis would be. Dr. Garrett Pipkin pointed out to me that inversion, with the weight bearing on the lateral aspect of the foot, is phylogenetically primitive. The predilection of the disease for the fifth toe in Negroes is perhaps accountable on this basis. A short phalanx of the great toe would more readily cause a transverse fold if the foot was flat; and the wearing of shoes would reduce the effect of pronation and allay the symptoms. If the foot was inverted, however, the wearing of shoes would enhance the trouble instead of allaying it. Wellman [2] may have erred in discarding da Silva Lima's theory of traumatic etiology simply because ainhum usually occurs in Negroes who wear shoes.

It is not sound to make great claims for the etiologic theory of ainhum that I present. I have reported only one case, but its observation was fortunate. The great toe, not the fifth toe, was involved, but ainhum is not limited to the fifth toe, and the inversion of Negroes' feet in contrast to the flatness of white persons' may account for this. The important element for my theory is the fact of weight bearing on a crease, and this might be the result of any of several factors.

SUMMARY

Grooved calluses underlying the interphalangeal joints of the great toes of a white mother and son are described. These lesions were curious because they were made worse when the patient went barefooted and relieved when he wore shoes. They were exactly similar to the early lesions of ainhum, a pathologic process which more commonly affects the little toes of Negroes. No collateral anomaly of ectodermal structures [10] was present, but there was a skeletal anomaly, consisting of absence of the terminal cancellous tuft of the terminal phalanx of the great toe. This resulted in the bearing of weight on the crease beneath the interphalangeal joint instead of on the pad of the toe and so led to the production of a grooved callus. The first and elemental lesion of ainhum is a grooved callus, and the bending of a digit at this site occludes the nutrient supply of the terminal phalanx exactly as the bending of a paper tube occludes the hole through it.

This exposition of the source of one case of ainhum perhaps may be applied in many cases.

Ainhum is the proper designation for a condition which fits the description of Hyde and Montgomery,[1] quoted previously.

1308 Bryant Building.

10. Buschke, A., and Fischer: Keratodermia maculosa disseminata symmettrica palmaris et plantaris, in Neisser, A., and Jacobi, E.: Ikonographia dermatologica, Berlin, Urban & Schwarzenberg, 1910, vol. 5, p. 183. Michael, J. C.: Keratoderma Disseminatum Palmaris et Plantaris, Arch. Dermat. & Syph. **27**:78 (Jan.) 1933.

PRODUCTION OF SURFACE GROWTH OF PATHOGENIC FUNGI ON CULTURE MEDIUMS

SOME FACTORS OF IMPORTANCE

JOHN W. WILLIAMS, M.D.
CAMBRIDGE, MASS.

This paper deals with factors of importance in converting subsurface growths of pathogenic fungi into surface growths. It has a possible practical application, since substances which encourage surface growth when applied to the skin might attract organisms to the surface, where they would be more easily cultured or destroyed by antiseptics.

It was observed [1] that a few millimeters of Sabouraud's proof medium poured over subsurface growths on cysteine mediums will bring them to the surface. Hydrolyzates of skin produced a growth which was on the surface and below it equally, while those of hair produced a growth almost entirely beneath the surface.[2] Control growths in Sabouraud's proof medium were almost entirely on the surface. Representative amino acids gave predominantly subsurface growths.[3] When cysteine was added to Sabouraud's proof medium, it failed to produce a growth noticeably more of which was subsurface.[4] In all the mediums mentioned the source of carbon was dextrose.

Sabouraud's proof medium apparently contains one or more factors responsible for surface growth. Edestin, a globulin, does not show evidence of this factor.[3] A concentration of 1 per cent peptone is optimum. Increasing the concentration of dextrose to 4 per cent almost proportionately increases the surface growth. Pure carbon cannot be substituted as a source of carbon.[4]

In the study reported here an attempt was made to find a substance which when added to amino acids would convert a subsurface growth

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1. Williams, J. W.: Possible Importance of Mediums Causing Surface and Subsurface Growth of Pathogenic Fungi to Diagnosis and Treatment of Disease, J. Lab. & Clin. Med. **22**:268, 1936.

2. Williams, J. W.: Invasiveness of Skin Infections Caused by Pathogenic Fungi and Subsurface Mycelium, Science **83**:396, 1936.

3. Williams, J. W.: Allergy, Immunity and Growth of Pathogenic Fungi in Vivo and in Vitro, Urol. & Cutan. Rev. **41**:117 and 198, 1937.

4. Williams, J. W.: Subsurface Growth of Pathogenic Fungi on Peptone, Hair, Pig Skin and Cysteine-Cystine Mediums, Arch. Dermat. & Syph. **36**:581 (Sept.) 1937.

into a surface growth. Since Weidman and Spring [5] noted that phosphates and lactates in synthetic mediums increased spores and mycelium, respectively, these are the subjects of the present paper.

The pathogenic fungi and the saprophytes which were studied are listed in the tables.

The following mediums, adjusted to p_H 5.6, were used: S (Sabouraud's proof medium), consisting of 1 per cent peptone, 4 per cent dextrose and 1.5 per cent agar; W, consisting of 4 per cent peptone,

TABLE 1.—*Surface Growth*

	St	C	CP	CL	CLP	C½LP	W	S
Achorion schoenleinii	½	½	1	1	2	3	4	5
Acladium castellani	½	1	2	1	½	½	4	4
Candida candida	1	1	1	1	1	1	4	4
Endodermophyton indicum	sp.	sp.	½	½	—	—	4	4
Endodermophyton tropicale	½	½	1	½	½	½	3	4
Endomyces capsulatus	sp.	½	sp.	½	½	½	4	4
Endomyces dermatitidis	sp.	sp.	1	sp.	1	1	4	4
Epidermophyton cruris	sp.	sp.	½	2½	sp.	1	4	5+
Epidermophyton inguinale	sp.	sp.	½	1½	½	4	4	5
Epidermophyton rubrum	1½	½	3	4	4	4	4	4½
Geotrichum bachmann	sp.	sp.	1½	sp.	3	3	4	4
Glenospora gammeli	sp.	sp.	½	½	1	1½	4	4
Indiella americana	sp.	sp.	sp.	sp.	½	½	4	5
Lichtheimia sp	1	1	1	—	—	—	5	5
Microsporon audouini	½	½	4	1	3	3	4	4
Microsporon felineum	sp.	sp.	2	3	4	4	4½	5
Microsporon gypseum	sp.	sp.	sp.	2	sp.	sp.	5	5
Monilia albicans	½	..	1+	sp.	sp.	½	4	4
Oospora humi	1	1	2½	2½	4	4	4	4
Scedosporium apiospermum	sp.	sp.	3	sp.	3	3	3	4½
Scopulariopsis brevicaulis	sp.	sp.	sp.	1½	3	3	5	4
Sporotrichum schenckii	sp.	sp.	sp.	½	½	½	1	4
Trichophyton balcaneum	—	—	—	—	—	—	3+	..
Trichophyton crateriforme	½	1	2	2	3	4	4	4½
Trichophyton decalvans	—	—	—	—	—	—	4	4
Trichophyton granulosum	1	—	2	3	3½	3½	4	4
Trichophyton gypseum	—	—	—	3	2½	4	4	4
Trichophyton gypseum asteroides	1	sp.	1	4	2	4	4	4
Trichophyton gypseum lacticolor	½	sp.	2	3	4	4	4	5
Trichophyton interdigitale	sp.	sp.	1	3	3	3½	4	5
Trichophyton louisianicum	1	sp.	1½	2	2	2½	4	4
Trichophyton niveum	sp.	sp.	1	3	4	4	4	4
Trichophyton purpureum	1	1	..	½	½	1	4	4
Trichophyton sulfureum	..	½	2	2	2	3	4	5
Willia anomala	½	½	1	2	2½	2½	4	3½
Index	0.36	0.26	1.11	1.46	1.74	2.12	3.92	4.2

sp. indicates sparse.
The cultures were the same as those reported in my many previous articles.

1 per cent dextrose and 1.5 per cent agar; St, 0.25 per cent l-cystine (Difco), 4 per cent dextrose and 1.5 per cent agar; C, made of 0.25 per cent cysteine hydrochloride (Eastman), 4 per cent dextrose and 1.5 per cent agar; CP, made of 0.25 per cent cysteine hydrochloride, 4 per cent dextrose, 1 per cent sodium phosphate and 1.5 per cent agar; CL, consisting of 0.25 per cent cysteine hydrochloride, 4 per cent dextrose, 1 per cent sodium lactate and 1.5 per cent agar; CLP, containing 0.25 per cent cysteine hydrochloride, 4 per cent dextrose, 1 per cent sodium

5. Weidman, F. D., and Spring, D.: Comparison of Ringworm Culture Ingredients, Arch. Dermat. & Syph. **18**:829 (Dec.) 1928.

lactate, 1 per cent sodium phosphate and 1.25 per cent agar, and C½LP, containing 0.25 per cent cysteine hydrochloride, 4 per cent dextrose, 0.5 per cent sodium lactate, 0.5 per cent sodium phosphate and 1.5 per cent agar. The organisms were grown on slants at room temperature in diffused light for two months. Recordings correspond to growths after two months.

SURFACE AND SUBSURFACE GROWTHS

Tables 1 and 2 indicate increase in surface growth and at times decrease in subsurface growth when lactate and phosphate were added

TABLE 2.—*Subsurface Growth*

	St	C	CP	CL	CLP	C½LP	W	S
Achorion schoenleinii	2	1	2½	2½	1½	½	1 mm.	1 mm.
Acaladium castellani	1	1½	1½	½	½	½	1 mm.	1 mm.
Candida candida	—	—	—	2	1	1	½	2
Endodermophyton indicum	1	1	2	½	—	—	1 mm.	1 mm.
Endodermophyton tropicale	sp.	½	1	1	½	1	1 mm.	1 mm.
Endomyces capsulatus	1	½	1	1½	2	2	1 mm.	1 mm.
Endomyces dermatitidis	2	2	2	2	2	2	2 mm.	2 mm.
Epidermophyton cruris	½	½	½	1½	½	1	2 mm.	—
Epidermophyton inguinale	1	1	1	1½	1	1	2 mm.	2 mm.
Epidermophyton rubrum	1	1½	—	½	1 mm.	1 mm.	1 mm.	—
Geotrichum bachmann	1	1	—	1	1 mm.	1 mm.	1 mm.	1 mm.
Glenospora gammeli	1½	1½	1½	2	2	2	1 mm.	1 mm.
Indiella americana	½	½	1	1½	1½	1½	2 mm.	2 mm.
Lichtheimia sp	—	—	—	—	—	—	—	—
Microsporon audouini	1	1	½	2	2	2	1 mm.	1 mm.
Microsporon felineum	2	1	1	1½	2 mm.	1 mm.	1 mm.	1 mm.
Microsporon gypseum	1½	½	1½	2	½	2	1 mm.	—
Monilia albicans	3	..	2	2	2	2	1	2
Oospora humi	1	1	½	1	—	—	1 mm.	1 mm.
Scedosporium apiospermum	2	2	1	2	1 mm.	1 mm.	—	—
Scopulariopsis brevicaulis	½	½	1	2	2 mm.	1 mm.	1 mm.	1
Sporotrichum schenckii	2	2	2	2	2	1½	2	1
Trichophyton balcaneum	1½	1½	1½	1½	1½	1½	1	1
Trichophyton crateriforme	1½	1	1½	2	½	½	3 mm.	2 mm.
Trichophyton decalvans	1½	1½	1½	1½	1½	1½	1 mm.	1 mm.
Trichophyton granulosum	2	1	1	1	1	1 mm.	1 mm.	1 mm.
Trichophyton gypseum	1	½	1	2	1½	1	1 mm.	2 mm.
Trichophyton gypseum asteroides	1	1	1	1	2½	1	1 mm.	1 mm.
Trichophyton gypseum lacticolor	1	½	1	1	1	1 mm.	1 mm.	1 mm.
Trichophyton interdigitale	1½	½	1	2	1 mm.	1 mm.	1 mm.	1 mm.
Trichophyton louisianicum	1½	1	1½	2	2	1	1 mm.	1 mm.
Trichophyton niveum	1	1	1	1½	1 mm.	1 mm.	1 mm.	
Trichophyton purpureum	1	½	..	2½	1½	2½	—	—
Trichophyton sulfureum	..	1	1	1½	½	½	2 mm.	2 mm.
Willia anomala	sp.	1	1	—	sp.	sp.	½	½
Index	1.14	0.93	1.07	1.43	0.93	0.84	0.14	0.21

sp. indicates sparse.
The cultures were the same as those reported in my many previous articles.

to the medium. It is evident that results are more pronounced in C½LP than in CLP, which contained phosphate and lactate in higher concentration. The index is computed by adding the pluses and dividing by the number of organisms (called an average in previous articles). The indexes are approximate, since in a few instances either the organism did not grow or the plant did not "take." The results with W and S mediums are included for controls.

There was little change in the amount of subsurface growth except with CL, which shows a slight increase.

There was a progressive increase in surface growth from CP to C½LP with the following organisms: Achorion schoenleinii, Epidermophyton rubrum, Microsporon felineum, Oospora humi, Trichophyton crateriforme, Trichophyton granulosum, Trichophyton gypseum lacticolor, Trichophyton interdigitale, Trichophyton louisianicum, Trichophyton niveum, Trichophyton purpureum, Trichophyton sulfureum and Willia anomala.

CP showed better surface growth than CL with Acladium castellani, Geotrichum bachmann, Microsporon audouini, Scedosporium apiospermum, Monilia albicans and Lichtheimia sp.

CL showed better surface growth than CP with Epidermophyton cruris, Epidermophyton inguinale, Epidermophyton rubrum, Microsporon felineum, Microsporon gypseum, Scopulariopsis brevicaulis, Trichophyton granulosum, Trichophyton gypseum, Trichophyton gypseum asteroides, Trichophyton gypseum lacticolor, Trichophyton interdigitale, Trichophyton louisianicum, Trichophyton niveum and Willia anomala.

C½LP and CLP showed less surface growth than CP or CL with Acladium castellani, Epidermophyton cruris, Lichtheimia sp., Microsporon audouini and Microsporon gypseum.

Surface growth was less on CLP than C½LP with Epidermophyton inguinale, Trichophyton gypseum and Trichophyton gypseum-asteroides. In no instance was there more growth on CLP than on C½LP.

The organisms which showed resistance to change by lactate, by phosphate or by lactate and phosphate were Candida candida, Endodermophyton tropicale, Endomyces capsulatus (progressive increase in subsurface growth), Endomyces dermatitidis, Indiella americana (slight increase in subsurface growth), Sporotrichum schenkii, Trichophyton balcaneum and Trichophyton decalvans (no surface growth).

MORPHOLOGIC CHANGES

Since space does not permit more, I shall mention only a few marked morphologic changes in growth. Achorion schoenleinii showed a markedly raised, smooth, waxy, wrinkled surface growth. CLP brought out a brown and yellow color in the subsurface plates of Epidermophyton cruris and of Epidermophyton inguinale. The surface growth of Microsporon felineum on CLP was delimited, with compact, low, doe-skin mycelium, was cratered and wrinkled centrally and dipped 2 mm. below the surface at its edge. CLP and C½LP with Trichophyton crateriforme showed a translucent, irregularly radiate or wrinkled, centrally raised growth, with white, powdery mycelium. On CLP Trichophyton

granulosum showed a finely wrinkled, fairly dry, waxy, centrally raised colony resembling a cream puff and a waxy, smooth surface growth peripherally.

COMMENT

In general, the lactate-phosphate mediums encourage surface growth and possibly delimitation. The subsurface plate apparently [6] expresses the tendency of the organism to placentation. It varies with the organism and the medium. When the subsurface plate expresses a natural organismal tendency, exceedingly poor growth may account for its disappearance. On the other hand, too rampant growth may shroud its appearance. In broth cultures [7] it apparently is comparable to points of departure of growth.

Why the subsurface plate forms in the medium and why the growth does not remain on the surface are unanswered. The answer does not lie in the solidity of the medium.[4] The surface layer of the medium may be important. There are undoubtedly a condensation and composition at the surface different from those below. The accumulation on the surface of substances which lower surface tension is familiar. Fats and proteins may lower surface tension. The impurity of peptone and its incoagulable yet colloidal nature may result in a different surface layer when it is a constituent of the medium from that when an amino acid is employed. Peptone may better simulate the cell membrane and be less permeable to invasion by micro-organisms than an amino acid.

The molecules of amino acids and of dextrose are small. Many of the constituents of peptone are of much larger molecular size. The latter medium more closely simulates protoplasm. Diffusibility is retarded by protoplasm.

Another subject which is being investigated is evaporation of moisture from the surface of the medium. The greater this evaporation, the more nutrient is carried to the surface and the more prone are living things to live on the surface. This is shown in plant flora, in which greater evaporation results in greater surface growth.

Penetration of the medium by oxygen is of probable importance. Below many growths there is apparent reduction of the medium. When methylene blue is added to the medium it is evidently reduced to methylene white below the plate. Reduction may occur whether the growth is on the surface or below it and seems to bear a relation to the organisms' ability to form a plate or a compact growth.

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6. Williams, J. W.: Effect of Variation of Ratios of Dextrose to Peptone on Colonies of Certain Pathogenic Fungi, Arch. Dermat. & Syph. **32**:893 (Dec.) 1935.

7. Williams, J. W.: Platform Method of Growth of Certain Pathogenic Fungi, Arch. Dermat. & Syph. **31**:500 (April) 1935.

It was suggested in a previous paper [8] that increased wetness and waxiness noted when surface tension was lowered or osmotic pressure raised might be due to decreased evaporation and to the presence of water at the surface of the medium. Certain organisms show a wet and waxy surface growth when lactate and phosphate are present. The osmotic pressure is not markedly raised in these mediums, nor is the surface tension markedly lowered. The smaller size of the amino acid molecule changes the relationships which exist, so that they are not comparable. The fungous cells may be sufficiently permeable so that the cell functions little in breaking down substances for its nutrition. The lack of necessity of its function, accordingly, may determine the lack of necessity of surface growth.

The preceding dissertation expresses certain relations which I am attempting to correlate. They are probably of importance with reference to living things in general. To date it has been shown that a change in the ratio of peptone to dextrose, apparently a change in surface tension or in osmotic pressure, the addition of lactate and phosphate separately or together and a change in the type of nitrogen provider result in striking morphologic changes. These changes are orderly. This definitely indicates that they will be interpretable when knowledge has increased. The changes are peculiar to the organism or group of organisms. For example, in a study of subsurface growth it is evident that with certain organisms a definite amino acid brings out subsurface fruiting bodies while a combination of amino acids does not. With other organisms the reverse occurs.

CONCLUSIONS

Phosphate, lactate and a combination of the two increase the surface growth of certain pathogenic fungi. Which combination or combinations will act depends on the organism. The base medium consists of 0.25 per cent cysteine and 4 per cent dextrose.

Phosphate, lactate and the two together produce striking gross morphologic changes in the colonies of certain pathogenic fungi.

It is suggested that substances which result in the change of organisms from a subsurface growth to a surface growth may be of value in bringing them to the surface in cutaneous infections, so that they can be cultured and more easily destroyed by antiseptics.

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8. Williams, J. W.: Effects of Surface Tension and Osmotic Pressure on the Gross Morphology of Certain Pathogenic Fungi, J. Bact. **35**:409 (April) 1938.

EFFECTS OF ROENTGEN RAYS ON FUNGI IN VITRO

H. P. JACOBSON, M.D.
LOS ANGELES

The purpose of this communication is to record certain observed effects of roentgen rays on a group of representative pathogenic fungi. The reason for this study was a desire to determine, if possible, the effect of roentgen radiation on the organisms and to correlate the results with the successful therapy so often achieved in the treatment of fungous infections by irradiation.

EXPERIMENTAL MATERIAL

The material used in this investigation consisted of ten different organisms, representing the three major groups of pathogenic fungi[1] which seem to be the most common culprits in certain mycoses. They were:

Epidermophyton interdigitale	Monilia	Trichophyton violaceum
Achorion schoenleinii	Cryptococcus	Epidermophyton inguinale
Microsporon felineum	Actinomyces	Aspergillus niger
	Coccidioides immitis	

SOURCE OF RADIATION

The source of radiation employed was a standard Wappler 12 inch (30 cm.) Bellevue model roentgen ray machine and a standard broad focus Coolidge tube. The latter was operated at 80 kilovolts, 3 milliamperes and a focal distance from the exposed culture of 35 cm., with no added filter. The output of energy of the tube (calibrated by R. E. Pugh Jr.) under these conditions was found to be 99.5 roentgens per minute (approximately 260 roentgens equal 1 skin unit [u. u.]).

CULTURE MEDIUM

The culture medium employed throughout the series of experiments was Sabouraud's isolation medium. All organisms were grown at room temperature with the exception of C. immitis, which was grown at

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Attending Dermatologist and Chairman of the Malignancy Board, Los Angeles County General Hospital; Attending Dermatosyphilologist, Cedars of Lebanon Hospital.

1. Jacobson, H. P.: Fungous Diseases, Springfield, Ill., Charles C. Thomas, Publisher, 1932.

incubator temperature, 37.5 C. (99.5 F.). All culture tubes were of 22 mm. internal diameter, and "butts" constituted the form of medium in all except the first two experiments, where slants were employed. In special instances 125 cc. Erlenmeyer flasks were used. An effort was made to use particles of fungous material of nearly equal size for inoculations, although frequently this was impossible.

PROCEDURE

As a first step in the investigation it seemed desirable to learn what effect, if any, roentgen radiation would exert on the culture medium and, in turn, how such an effect would express itself in the fungous material grown on it. To that end I exposed one tube of medium to ¼ skin unit, a second to ½ skin unit and a third to 1 skin unit of unfiltered roentgen rays; a fourth tube was not irradiated but kept as a control. All the culture tubes were then inoculated with E. interdigitale. The results obtained, as compared with the controls, were slight inhibition in the tube exposed to 1 skin unit and some acceleration of growth in those irradiated with ¼ and ½ skin unit, but the effect was not pronounced enough to warrant drawing any definite conclusions. Careful tests of the effect of heavy metals in proximity to the culture yielded negative results.

As an additional check on the possible effects of roentgen radiation on the rate of growth of subcultures from irradiated organisms a set of five tubes was inoculated with E. interdigitale (same stock culture), and after five days' incubation at room temperature they were exposed to ¼, ½, 1, 2 and 4 skin units of roentgen rays, respectively; a sixth tube similarly inoculated was not irradiated but permitted to grow as a control. Twenty-four hours after irradiation of the cultures, subcultures were made of material from all tubes, and the rate of growth of both the parent culture and the subculture was observed.

There was no noteworthy difference in the gross rate of growth of the irradiated cultures and the controls, in either parent cultures or subcultures.

The possibility of a ten day delayed reaction, suggested by one investigator working experimentally with Actinomyces,[2] was studied: Two flasks of Sabouraud's isolation medium, with surface diameters of 6.5 cm., were inoculated centrally with E. interdigitale (same stock culture). One was kept as a control and the other exposed to 4 skin units of unfiltered radiation. Measurement of the diameter of the growth in each flask was made on the tenth and the thirteenth day and each day thereafter for twenty-two days. The irradiated culture grew consistently faster than the control, and there was no evidence of any delayed reaction. Similar studies with M. felineum and A. schoenleinii produced identical results.

The work with the other nine organisms followed the scheme previously outlined with but minor variations in individual instances. Between one and a half and five hours after inoculation the cultures were exposed to the doses of radiation, and the growth was measured and recorded daily. For each organism a control was kept, treated in the same way as the rest with the exception of irradiation. Then this procedure was repeated in modified form; that is, after the organism was permitted to grow from three to nine days, depending on its individual characteristics of growth, roentgen exposures of the same doses used before were made. From twenty-four to seventy-two hours later the organisms in the latter group which had received 4 skin units of radiation, together with their controls, were studied microscopically, and drawings were made. Twenty-four

2. Smith, E. G.: Roentgen Therapy of Actinomycosis, Am. J. Roentgenol. **31**:823-829 (June) 1934.

hours after irradiation subcultures were made from all cultures, including the nonirradiated controls.

The rate of daily growth of the parent cultures was measured and recorded. The subcultures were watched, but the results, showing no remarkable variations from the controls (except for a definite increase of the rate of growth in actinomyces), were not registered.

Finally, all ten organisms were inoculated in sets of two tubes each, one tube of each set being kept as a control and the other exposed to 10 units of unfiltered roentgen radiation. Measurements of the growth of these were recorded in the same way as were those of cultures receiving smaller doses.

RESULTS

The results of the experimental investigations are presented schematically in graphs and microdrawings and descriptively in the text. The growth behavior of one of the ten organisms studied is illustrated, the graph consisting of three distinct groups of curves. The uppermost group depicts the behavior of the cultures irradiated immediately or a few hours after inoculation. The ordinate expresses the rate of daily growth in terms of millimeters, 22 mm. being the full growth of the culture. The curve of growth is plotted against time, and the slope of the curve indicates the rate of growth. The net change in diameter of the culture after irradiation divided by the number of days required for that change gives the index number of the rate of growth. In every case of the growth rate index the immediately irradiated culture was divided by the index rate of the nonirradiated control and the values thus adjusted arbitrarily to the unit for the control.

As an example of the calculation of the growth rate index, the culture of E. interdigitale which was exposed to ½ unit of unfiltered radiation may be used. The culture, irradiated immediately after inoculation, had an original diameter of 1 mm. and a final diameter of 22 mm., or the internal diameter of the test tube. The difference in these diameters, or the amount of growth observed after irradiation, was 21 mm., and the time required for this growth was seven days. The index was therefore, 21/7, or 3 (growth divided by days). The control, or unirradiated, culture grew from 1 to 22 mm. in eight days (index = 21/8, or 2.63). By dividing all the indexes by the index of the control, these values may be adjusted to make the control arbitrarily unity. Adjusted indexes less than unity represent cultures which were inhibited by irradiation (compared with the control), and those greater than unity represent those in which growth was accelerated. The adjusted index for the culture which received ½ skin unit is 3/2.63 or 1.14.

The middle graph records the growth behavior of organisms irradiated four days after implantation. The structure and the scale are the same as those of the first graph. The ordinate indicates daily growth in millimeters; the abscissa denotes time. The rate of growth is calculated from the curves. The index number for the rate of growth

is estimated as for the immediately irradiated cultures, for the period before and the period after irradiation, and recorded on the graph. A comparison of the two values (after irradiation and before irradiation) provides the ratio of "after/before," and this is recorded below the base line. The letter "x" on each curve of the graph, except the control, indicates the diameter of the culture at the time of irradiation and the day on which it was irradiated.

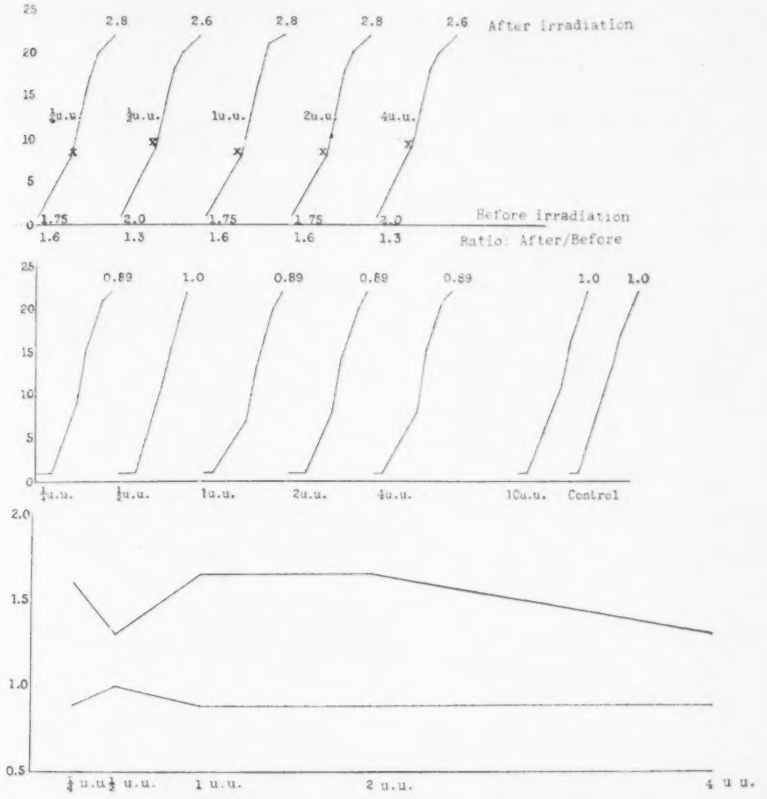

Fig. 1.—Curves of growth of E interdigitale. The first graph shows the indexes of growth for cultures irradiated immediately after inoculation, and the second, those for cultures irradiated four days after inoculation. The figures on the vertical axis indicate the increase in diameter in millimeters; the horizontal axis represents time. The third graph expresses the relation between growth and irradiation, the upper curve being for delayed and the lower curve for immediate irradiation. The figures on the horizontal axis indicate skin units of unfiltered radiation, and those on the vertical axis, the ratio of indexes (after/before irradiation) for the upper curve and the index of growth for the lower curve.

For example, for the delayed irradiation of the culture of E. interdigitale, which eventually received ½ skin unit of unfiltered radiation, the following data are available: original diameter, 1 mm.; diameter

at the time of irradiation, 9 mm.; final diameter, 22 mm. The culture was irradiated four days after implantation and attained full growth five days after irradiation. The index before irradiation was 8/4, or 2; the index after irradiation was 13/5, or 2.6. The ratio of index after to index before irradiation is 2.6/2, or 1.3.

The lower group of curves is a graph of the indexes calculated from observations of the growth in the curves above and serves to indicate the behavior of the organisms irradiated immediately after implantation compared with that of those irradiated one or several days after inoculation. Here, it will be noted, the vertical axis represents the index of the rate of growth for the immediately irradiated series and the ratio of "after/before" for the series in which irradiation was delayed. The horizontal axis for the lower group is always units of radiation or dose. A feature worthy of note here is the "mirror-image" effect

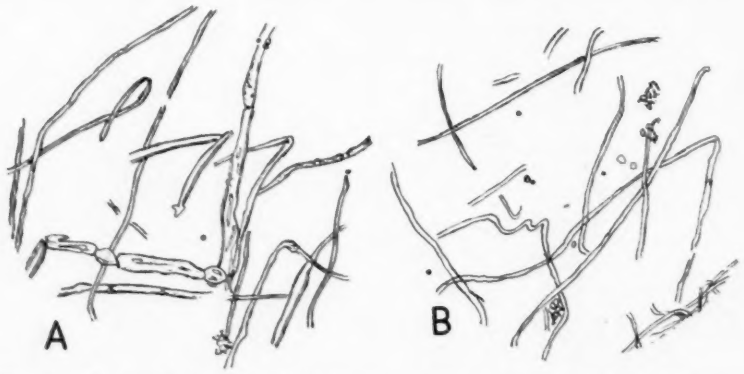

Fig. 2.—E. inguinale. *A* (high power) shows a control unirradiated 11 day old culture. The hyphal elements vary in size and internal structure; an occasional cluster of highly refractile bodies (spores?) is present. *B* (high power) shows an 11 day old culture irradiated with 4 unfiltered units of roentgen radiation the seventh day after inoculation; the hyphal elements appear smaller in diameter and show no granular formation, as do the hyphal elements in the control; the number of clustered and single refractile bodies (spores?) are greater than in the control.

formed by the upper and the lower curve of the graph in seven of the ten organisms studied. It will be observed that a peak of one curve corresponds to a dip in the other and vice versa. It would appear that the percentage of frequency of this occurrence is too high to be considered a mere coincidence and that some fundamental phenomenon of irradiation must be involved.

ANALYSIS

A study of the charts indicates that the biologic effects of the roentgen rays seem to depend not only on dose but on the interval between planting and irradiation of the culture. All the organisms studied

seemed to be affected by this time element in varying degrees, especially C. immitis, A. niger and Actinomyces. Delayed irradiation resulted in marked acceleration of growth (from two to ten times as fast as their controls). Immediate irradiation resulted variously—in mildly accelerated growth, in inhibited growth and in no observable effect. In the case of Cryptococcus, however, the phenomenon of irradiation was reversed: it expressed itself in markedly accelerated growth

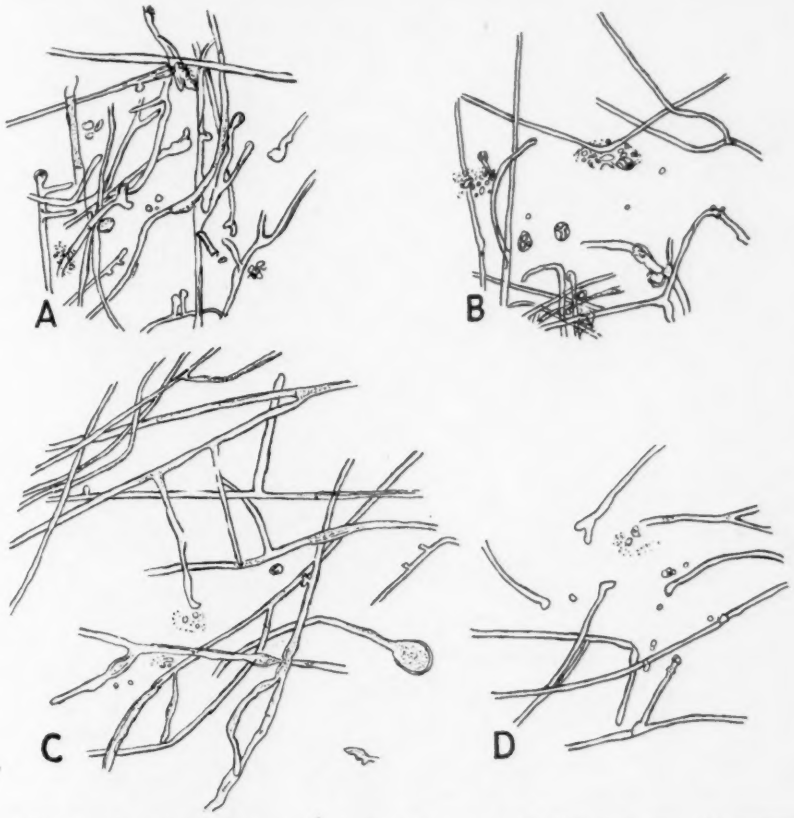

Fig. 3.—A. schoenleinii. *A* and *B* show an unirradiated 6 day old culture (low power). *C* (high power) and *D* (low power) show a 6 day old culture which was exposed to 4 unfiltered units of roentgen radiation the fifth day after inoculation. More branching is noted; there are fewer clubbed ends on the mycelia and fewer free spores. Hyphae are less hyaline and less regular and have a more definite internal structure. Chlamydospores are much in evidence.

in the immediately irradiated cultures and in inhibited growth in the series in which irradiation was delayed.

The dose of roentgen rays, as indicated previously, no less than time, seemed to exert some effect on the life cycle of most of the organisms studied but in varying degrees and in different directions, as shown in

the representative charts included here. The response of the different organisms to 10 units of roentgen radiation (not included in the lower pair of curves on the charts) varied considerably in degree and direction. Thus, it may be noted that while E. interdigitale showed moderate inhibition of growth, Cryptococcus showed moderate acceleration of growth.

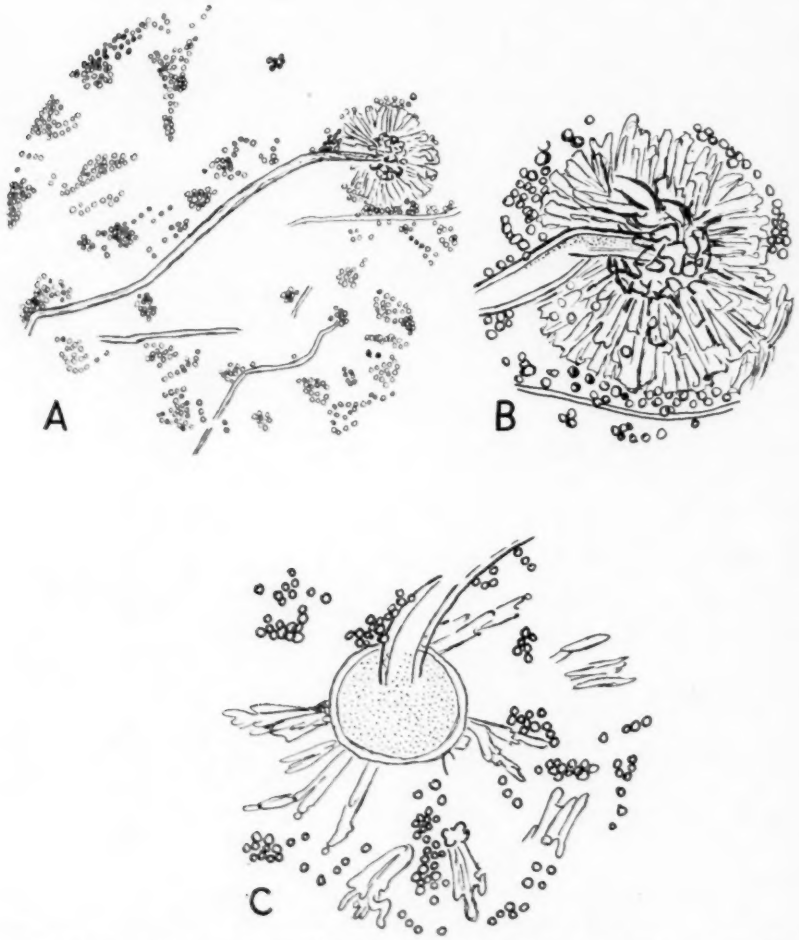

Fig. 4.—A. niger. *A* (low power) shows a control 4 day old unirradiated culture; *B* (high power) shows detail of the spore-bearing head seen in *A*; *C* (high power) shows a 4 day old culture which received 4 unfiltered units of roentgen radiation one and one-half hours after inoculation; the free spores do not seem affected, but the sporangia are almost completely separated from the stalk.

Then again, Monilia showed emphatic acceleration of growth, while M. felineum showed definite inhibition; C. immitis was moderately inhibited, while A. niger showed no observable effect with 10 units of irradiation.

MICRODRAWINGS

The microdrawings included in this study are self-explanatory. Worthy of special note is the difference in patterns of response to radiation which several of the organisms presented under the microscope,

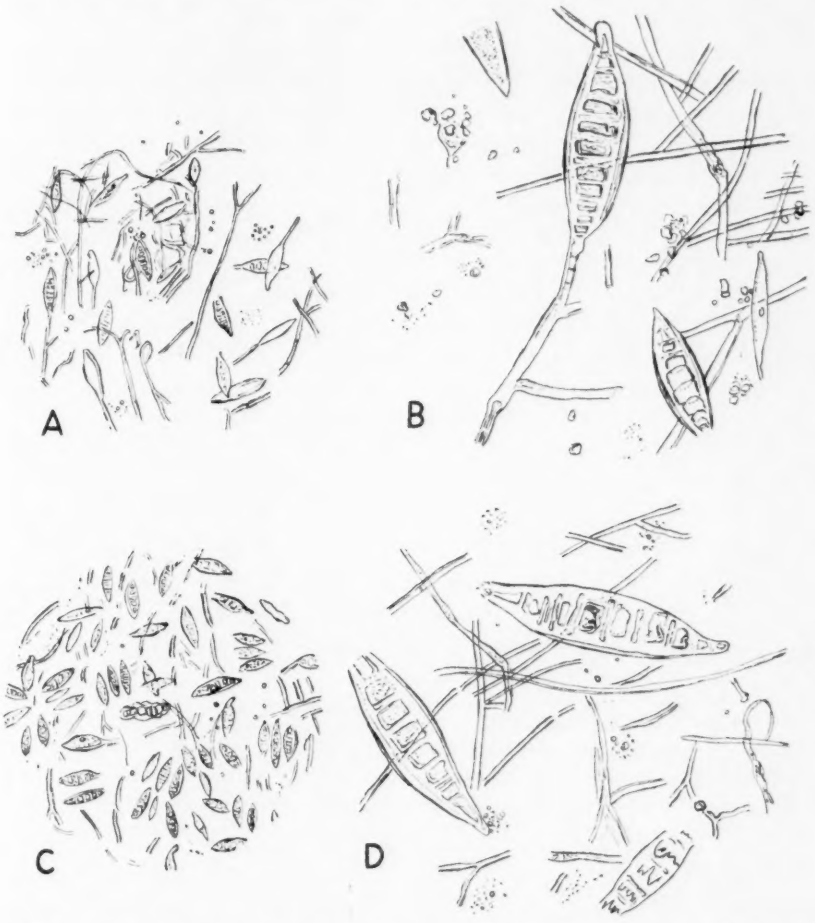

Fig. 5.—M. felineum. *A* and *B* show an unirradiated 7 day old culture. A large number of fuseaux appear in *A* (low power), some hyaline and some showing internal structure, and branched hyphal elements are present. *B* (high power) shows the details of the fuseaux. *C* and *D* show the same organism twenty-four hours after receiving 4 unfiltered units of roentgen radiation. The fuseaux are much more numerous; there are more free spores and granules, and the mycelia seem more fragmented. The internal structure seems more distinct, both in high and in low power.

as shown in the drawings. It might be recalled here that for the purposes of this study the cultures chosen were those receiving identical

quantities of irradiation (4 unfiltered skin units), while the interval between planting and irradiation varied between twenty-four hours and several days.

As compared with their respective controls, most of the organisms under magnification, as in gross appearance, seemed to show some effects of irradiation. The only exceptions were T. violaceum and Actinomyces, which did not show any effects microscopically, though culturally T. violaceum was as definitely inhibited after 4 units as Actinomyces was markedly accelerated. The chief microscopic changes noted were: (1) increased branching (E. interdigitale and A. schoenleinii), (2) increased budding (Monilia), (3) increased chlamydospores and fuseaux (A. schoenleinii and M. felineum), (4) internal structure increased and more prominent (A. schoenleinii and Cryptococcus), (5)

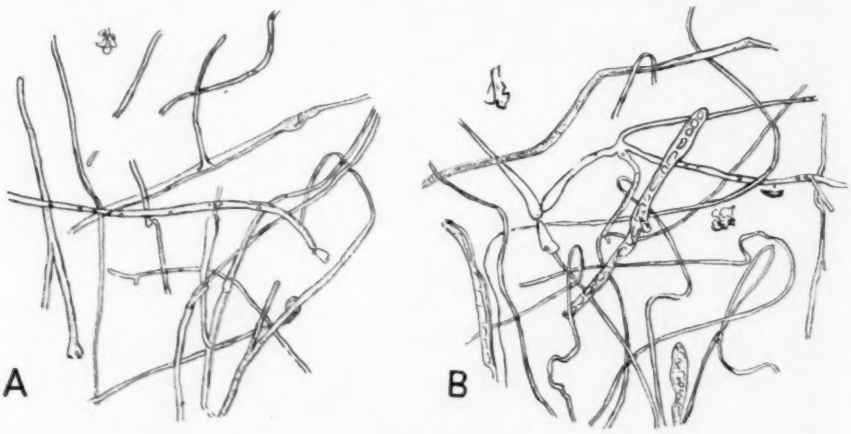

Fig. 6.—Coccidioides *A*, control unirradiated 5 day old culture, showing septate hyphae containing endospores and an occasional chlamydospore (high power); *B*, 5 day old culture which received 4 unfiltered units of roentgen radiation the third day after inoculation; the hyphae appear longer and contain fewer endospores; the chlamydospores are much more numerous, and arthrospore formation is in evidence (high power).

internal structure less prominent (E. inguinale), (6) hyphal elements diminished in size and number (M. felineum and E. inguinale) and mycelial fragmentation (M. felineum), (7) increase in size of cells and hyphae (Cryptococcus and C. immitis) and (8) separation of sporangia from stalks (A. niger).

SIGNIFICANCE OF EXPERIMENTAL RESULTS

It is difficult to interpret the significance of the experimental results. The task becomes especially complicated when one attempts to reconcile the obviously contrasting and opposite effects of the rays on the fungi in vitro with those observed in vivo in human infections. An

extreme case in point is the apparently stimulating action of the rays on Actinomyces in the test tube, as evidenced by a markedly accelerated rate of growth (especially in the cultures receiving 4 and 10 units), as against the commonly observed favorable results achieved in clinical actinomycosis by roentgen irradiation. Somewhat less striking is the rather frequent stimulating action of the rays on the several cutaneous fungi in vitro contrasted with the well known beneficial effects of roentgen rays on the lesions of the dermatomycoses caused by these same mycetes.

The questions involved are fundamental and relate to the as yet unknown factors concerned in the phenomena of cellular radiosensitivity and radioresistance. It would appear from this study that, in addition to time and dosage, there must be other factors at work which influence the cellular response to irradiation. The difference in the response of these organisms to irradiation in human tissues and in artificial culture mediums would indicate that the medium plays a definite and important role in the problem at hand. This observation coincides with the view of Pusey and Caldwell,[3] who stated:

> The fact that organisms in living tissues can be destroyed by exposure to x-rays, while the same organisms in inert cultures are uninfluenced by x-ray exposures, proves positively that it is not the influence of x-rays *per se* that causes the destruction, but that the tissues themselves, doubtless under conditions of activity excited by the x-rays, play the important role in the germicidal process.

Taylor, Thomas and Brown,[4] in a study of the effects of radiation on Colpidium campylum (protozoan), concluded that the lethal effect of roentgen radiation on this organism was due to the production in the medium, in the presence of air, of small quantities of hydrogen peroxide, which in turn caused the death of the organism.

Henshaw and Francis,[5] in a comprehensive experimental study concerning the biologic factors influencing the radiosensitivity of cells, were unable to find evidence of an existing close relation between radiosensitivity and such biologic cellular processes as metabolism, growth and mitosis.

In the light of these observations, it seems reasonable to assume that the good results frequently attained in the management of the clinical mycoses by roentgen irradiation are due to the action of the rays

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3. Pusey, W. A., and Caldwell, E. W.: The Practical Application of Roentgen Rays in Therapeutics and Diagnosis, Philadelphia, W. B. Saunders Company, 1903, p. 284.

4. Taylor, C. V.; Thomas, J. O., and Brown, M. G.: Studies on Protozoa: Lethal Effects of X-Radiation of a Sterile Culture Medium for Colpidium Campylum, Physiol. Zoöl. **6**:467-492, 1933.

5. Henshaw, P. S., and Francis, D. S.: A Consideration of the Biological Factors Influencing the Radiosensitivity of Cells, J. Cell. & Comp. Physiol. **7**:173-195 (Dec. 20) 1935.

on the tissues, which in turn exert an adverse or possibly lethal effect on the infecting organisms in situ. The exact mechanism by which this is accomplished is unknown but is, in all likelihood, related closely to the immunity of the tissues and the humors generally. It would appear from the results obtained in this relatively limited investigation that time and dosage play some part in the effects of irradiation but that the degree and the direction of such effects vary considerably with the different organisms. Further research on the effects of radiation on organisms in vitro would undoubtedly shed more light on the problems involved.

SUMMARY

Ten different organisms were studied in vitro to determine the effect of roentgen radiation on their growth.

The parasites all received identical quantities of irradiation. One set of tubes of each organism was exposed to roentgen rays, from fractions of 1 up to 10 skin units, from one and a half to several hours after planting; another set was similarly treated two or more days after inoculation.

With E. interdigitale no effect of irradiation on the medium or, in turn, on the growing culture was found, and copper and irradiation combined had no effect either directly on the organism or indirectly through the medium on the growing fungus. In addition, the possibility of a ten day delayed reaction was investigated for this organism, for M. felineum and for A. schoenleinii, but no such effect was found.

The effect of irradiation with different doses and intervals between planting and exposure to the rays varied considerably in the different cultures.

The effects of irradiation on the second generation of cultures proved to be generally nonexistent.

CONCLUSION

The results of this investigation, while not conclusive, seem to suggest that the beneficial therapeutic effects of roentgen irradiation on the clinical mycoses are largely due to the action of these rays on the tissues primarily, which, in turn, probably through some intermediary unknown factors of immunity generated in them by the roentgen rays, exercise an adverse effect on the infecting parasites in situ.

Miss Helen Marienthal, technician, and Mr. R. E. Pugh Jr. assisted in preparing the graphs and microdrawings.

2007 Wilshire Boulevard.

DERMATITIS PRODUCED BY PETROLATUM

REPORT OF A CASE

LESTER HOLLANDER, M.D.
PITTSBURGH

Weber [1] stated that the literature fails to show reports of dermatitis from pure petrolatum because it is one of the most stable bodies and does not contain phenol, cresol or any saponifying matter. This is unquestionably true, for otherwise cases would have been observed and reported, as petrolatum is one of the most widely used ointment bases. Sensitivity does occur however, sporadically, as in the case reported herewith. It was not suspected until everything else had been eliminated. Because of this unusual sensitivity I believe this report is justified.

REPORT OF CASE

Mr. G. F. R., aged 45, an executive in a glass plant, was referred by Dr. L. D. Johnson, of Connellsville, Pa., on account of a grotesque swelling of the eyelids and the face, associated with intense itching. The eruption began three weeks previous to my first examination as a vesicular and vesiculopapular, itchy eruption of the scalp and the forehead which later increased in extent and was accompanied with edema of the lower eyelids.

As the patient had been under treatment for ragweed fever since 1928, it was thought that the current disturbance was another allergic manifestation. He was therefore given cutaneous tests. Positive reactions to certain foods and external irritants were obtained, and these substances were all eliminated, without any benefit being noted.

While this condition became progressively worse, ten days after its onset, the patient, accompanied by his wife, attended a business meeting at White Sulphur Springs, W. Va. He spent seven days there, and during this time all the symptoms became increasingly severe.

When he returned home, a tentative diagnosis of angioneurotic edema was made, but as complete starvation and injections of ephedrine and epinephrine hydrochloride failed to check this condition, he was referred to me for further study.

His first visit to me was on Nov. 1, 1937. His face was distorted by swellings of both lower eyelids, the upper right eyelid and both cheeks to such an extent that the palpebral fissures appeared as narrow slits. He opened his mouth with difficulty, and the lips felt solid. The contour of the lower portion of the

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From the Pittsburgh Skin and Cancer Foundation.

1. Weber, L. F.: External Causes of Dermatitis (A List of Irritants), Arch. Dermat. & Syph. **35:**161 (Jan.) 1937.

face was rhomboid. The scalp, the forehead, the face, the ears and the neck were covered by a pinpoint, vesicular eruption, erythematous in places. Scratch marks were present over most of the areas. Close questioning elicited the information that, although this eruption had begun acutely only three weeks before, he had had an itchy eruption on the pate (which is bald) and the forehead for some time. This was attributed to nervousness. Further, the intensity of the edema and the itching was greatest when he arose in the morning.

From the aforementioned data I made a tentative diagnosis of contact dermatitis produced from something having reference to the scalp or the hair. The patient was questioned meticulously about the use, not only by self but by his wife, of tonics, dyes and cosmetics for the hair and lotions and ointments for the scalp. Nothing of any apparent significance was noted. Neither he nor his wife used any preparations for the scalp or the hair, except that he occasionally applied petrolatum to his hair to facilitate dressing it. This seemed unimportant, but it was noted.

Questions about headwear elicited the facts that about a month ago he had had his felt hats cleaned and that two or three times a week he wore a hunter's (whip) cap which had a fleecelined metal top. After riding, if his skin became windbeaten, he rubbed cold cream on his face.

The patient was hospitalized (at the Montefiore Hospital) in an air-filtered room. He was placed on a general diet. A mask dressing moistened with solution of aluminum acetate (1:25) was applied; this covered the entire head and was ordered to be kept on day and night and moistened every two hours.

His hats, cap, cold cream and soap were obtained from his home, and patch tests with all of these were made on Nov. 2, 1937. On November 3, the reactions to all the patch tests were negative (the substances were then reapplied). On November 4 the reactions to all the patch tests remained negative. The patient's condition, however, was greatly improved. In order to permit the patient to have a night's rest, the mask was removed in the evening and kept off during the night. On November 5 eruption, swelling and itching increased greatly. Practically all the gains were lost, much to the disappointment of the patient. This manifestation had a totally different effect on me, however, since now there was no doubt that the irritant was present on the patient's own scalp or hair and that it was transmitted through the pillow case as he tossed about in his sleep. A thorough and daily shampoo of the scalp was ordered, and the mask covering the head was replaced and kept moist as before.

As the only uninvestigated possible contaminant was petrolatum, it was massaged gently onto the arm four times daily and the site left uncovered (the substance being used as the patient had used it instead of as a patch test).

On November 6 all the symptoms had again subsided. The tested arm appeared unaffected. On November 7 there was no change from the condition on the previous day. On November 8 the patient's condition was greatly relieved. Except for the edema in the dependent portions of the cheeks, he was practically well. A pinpoint, vesicular, somewhat itchy, eruption appeared on the tested arm. On November 9 there was no question as to the etiologic agent. Redness, swelling, vesiculation and marked itching were present on the tested arm. From that point on the problem was easy. On November 12, under previously described treatment, the patient had recovered completely and was discharged from the hospital cured.

COMMENT

There are but a few practical points which need special emphasis in the analysis of this case:

1. Angioneurotic edema is rarely associated with vesicular dermatitis.

2. Marked involvement of the eyelids, especially when this is at its height when the patient arises, should always throw suspicion on the scalp or the hair.

3. All things should be regarded as contaminants until they are proved otherwise. In this case I was slow to suspect the true etiologic agent, petrolatum, because I had never observed sensitivity to it.

4. The manner of testing the skin should be the same as the manner in which the irritant is used.

5. Use of a test substance should be persisted in if there is any justification for it.

6. Contact dermatitis produced by agents from the hair or the scalp is best treated with daily shampoos and complete covering of the head.

631 Jenkins Building.

MUCOUS GLAND TUMORS OF THE SKIN

JULIUS E. GINSBERG, M.D.
CHICAGO
AND
MAURICE J. REUTER, M.D.
MILWAUKEE

Mucous gland lesions of the skin are rather uncommon in general dermatologic experience. We believe that more of them would be recognized if histologic preparations were made oftener of bizarre cutaneous lesions which are usually destroyed therapeutically without being studied. Alertness as to their embryonic origin should lead to more frequent clinical suspicion of their presence.

In a review of the literature of so-called mixed mucous and salivary gland tumors in the skin and the subcutis, Ahlbom [1] pointed out that the most frequent site is the face but that a few are found on the trunk and the extremities. He treated three such tumors at Radiumhemmet, in Stockholm, Sweden, two on the face and one on the sole of the foot, and observed a certain degree of malignancy in all of them histologically. He expressed the belief that those tumors which consist partly of myxomatous and cartilage-like tissue are usually only slightly radiosensitive and hence should be treated surgically. The tendency of malignant mixed tumors to form metastases is certainly less than that of squamous cell cutaneous carcinomas, which they frequently simulate clinically.

Tessmann [2] and Ricker and Schwalb,[3] in an attempt to explain the origin of such tumors remote from the face (e. g., those on the dorsa of the hands), assumed that all these so-called mixed tumors of the skin proceeded from sweat glands which might undergo metaplasia to correspond more to mucous and salivary glands. In accord with this theory, Walther and Montgomery [4] have described a case of cystic dilatation of the excretory ducts in some sweat glands of the palm, in which the epithelial lining of the ducts showed retrogression to an epidermoid

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From the Section of Dermatology, Department of Medicine, the University of Chicago.

1. Ahlbom, H. E.: In der Haut und Subkutis lokalisierte sog. Mischtumoren vom Typ der Schleim- und Speicheldrüsengeschwülste und ihre Behandlung, Acta radiol. **16**:178-184, 1935.

2. Tessman, cited by Ahlbom.[1]

3. Ricker and Schwalb, cited by Ahlbom.[1]

4. Walther, M., and Montgomery, H.: Schweissdrüsentumor mit Epithelmetaplasie, Arch. f. Dermat. u. Syph. **163**:420-426, 1931.

structure and metaplasia into mucous cells. Clinically there was a pea-sized hyperkeratotic lesion on the left palm between the thenar and the hypothenar eminence traversed by a deep fissure about 1 cm. long at the site of a chronic nonspecific dermatitis.

Gans [5] stated that mucosal cysts of the outer layer of skin appear in particular in the region of the male urethra, especially about the raphe, and may be congenital or acquired. Those of the acquired type correspond in their genesis throughout to analogous cyst formations of the outer layer of skin. Those of congenital type have always been traced back to dispersals of mucous membrane and are due to a disturbance in embryonic development in the closing line of the genital groove. In this publication the cylindric epithelial cysts are mentioned first, whether they occur with or without mucous glands. For completeness one should remember in this connection the cystic peritoneal tumor observed by Wollin, which appeared histologically as an enterocystoma.

Mucous gland tumors of the skin about the ear, the neck and the upper part of the sternal area are in most instances evidently remnants of the branchial pouches. We present here two examples to support this statement; one lesion showed a duct lined with ciliated columnar epithelium, and the other was composed of pure mucous glands and transitional ciliated mucosa in an unusual location.

REPORT OF CASES

Case 1.—J. T. was a white woman aged 27 and of German descent. On the right side of the neck, about 1 inch (2.5 cm.) above the right clavicle and about 1½ inches (3.8 cm.) to the right of the midsternal line, was a tiny, red, slightly elevated papule, the center of which showed a pinhead-sized opening from which exuded occasionally a clear watery fluid and less frequently a milky white fluid. The lesion apparently had been present since birth. The patient had latent syphilis.

Microscopic examination of the cross sections (fig. 1) of the resected specimen showed a duct lined with ciliated columnar cells extending into the corium. There was a moderate infiltrate of round cells and plasma cells.

Case 2.—C. McG. was a white girl aged 10½ years. On the upper anterior part of the chest was a small growth. The mother explained that this had been present since birth and occasionally showed at its center the development of a blister, which exuded a clear fluid when ruptured. Examination showed a pinhead-sized vesicle, with a red, slightly firm indurated base 1 or 2 cm. to the right of the midsternal line and about 1 cm. below the suprasternal notch of the manubrium sterni. The lesion lay directly over the bone, but there was no tract leading to the deep structures of the neck. The child showed no evidence of congenital syphilis, although the mother had latent syphilis and the father neurosyphilis.

5. Gans, O.: Histologie der Hautkrankheiten, Berlin, Julius Springer, 1928, vol. 2, pp. 225-226.

Microscopic examination of the surgical specimen showed in cross section pure mucous glands and a large duct lined with transitional ciliated epithelium deep in the corium (fig. 2).

The four common sites of such lesions and of cervical fistulas arising from rests of branchial clefts are located along the side of the

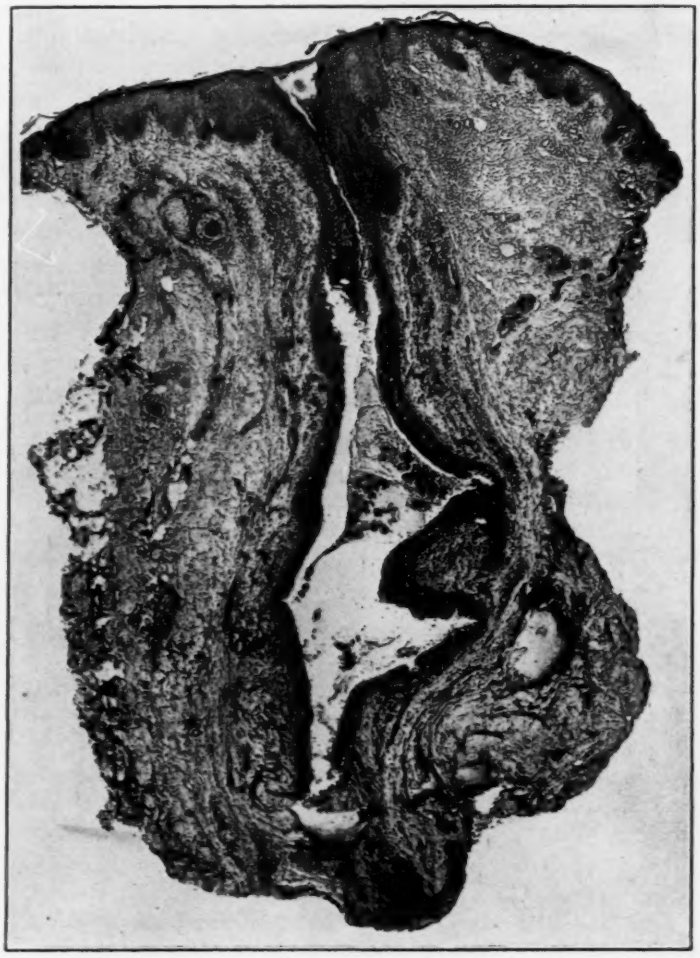

Fig. 1 (case 1).—Low power magnification of a section through a cutaneous orifice, showing transition from squamous to ciliated columnar epithelium in the orifice of the cutaneous duct (hemalum-erythrosin-saffron stain).

neck just anterior to the sternocleidomastoid muscle and are fairly evenly distributed between the external auditory meatus and the sternoclavicular junction. The fistulas usually arise from the second pouch, but that in the uppermost site may arise from the first pouch (preauric-

ular sinus), and that in the lowermost site may come from the third pouch.[6]

That the second lesion which we have described was over the lateral part of the manubrium sterni rather than in the skin of the neck proper is easily explained by the fact that at the time branchial clefts are pres-

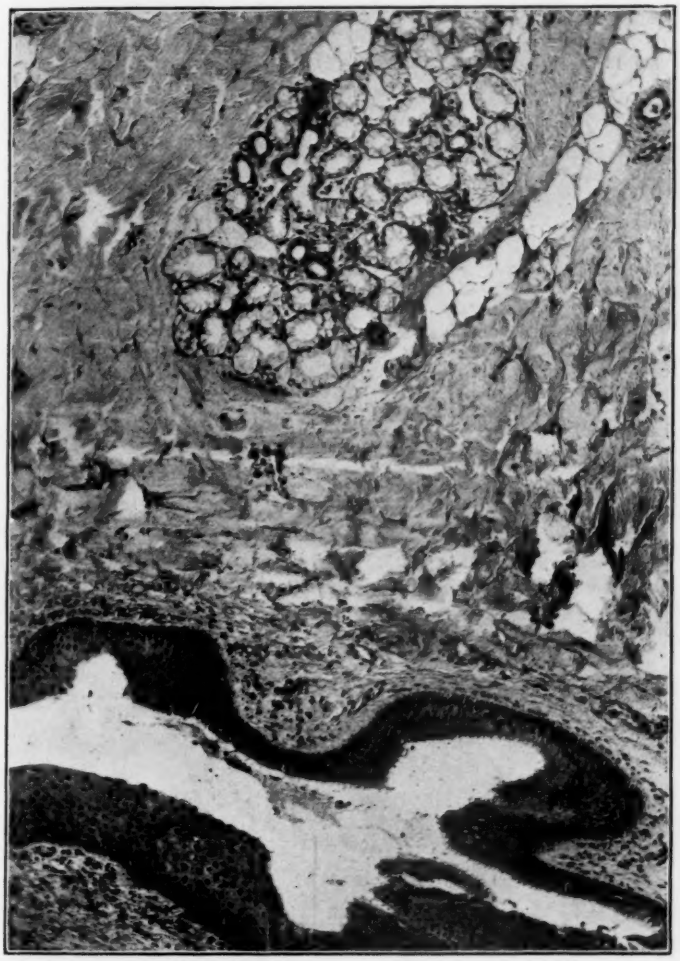

Fig. 2 (case 2).—High power magnification of a section showing a deeper portion of a duct lined by squamous and ciliated columnar epithelium, with mucous glands surrounding it (hemalum-erythrosin-saffron stain).

ent there is no neck or breast, these structures being clearly established by the growth ventrally of the more dorsal tissue.

6. Arey, L. B.: Developmental Anatomy, Philadelphia, W. B. Saunders Company, 1930.

That these lesions are remnants of the branchial pouch is indicated by their striking resemblance histologically to normal adult structures in the pharynx which are embryologically associated with the branchial apparatus,[7] e. g., the mucous membrane of the pharyngeal tonsil and of the eustachian tubes near the pharyngeal openings.[8]

Shedden, in his excellent study of fifty-one branchial cysts and fistulas, found no familial incidence of such lesions, although he cited the report of one observer who noted five branchial abnormalities in one family and another who observed the same condition in brothers.[9]

Related cutaneous anomalies probably arising from the branchial pouches have been reported by Becker and Brunschwig,[10] Selkirk [11] and many others.

SUMMARY

Mucous gland tumors of the skin may appear over any part of the body. Those occurring about the ears, the neck and the upper part of the sternum are usually rests of branchial pouches. Those occurring about the genitalia usually represent disturbance in embryonic development in the closing of the genital groove. Those occurring on parts remote from the aforementioned sites (e. g., those on the hands) probably arise from sweat glands which undergo metaplasia to correspond more to mucous and salivary glands. Two instances of rests of branchial pouches in the skin are described.

8 South Michigan Avenue, Chicago.

324 East Wisconsin Avenue, Milwaukee.

7. Jordan, H. E., and Kindred, J. E.: Textbook of Embryology, New York, D. Appleton and Company, 1926.

8. Maximow, A. A., and Bloom, W.: A Textbook of Histology, Philadelphia, W. B. Saunders Company, 1930.

9. Shedden, W. M.: Branchial Cysts and Fistulae, New England J. Med. **205**:800-811 (Oct. 22) 1931.

10. Becker, S. W., and Brunschwig, A.: Sinus Preauricularis (Fistula Preauricularis Congenita), Am. J. Surg. **24**:174-177 (April) 1934.

11. Selkirk, T. K.: Fistula Auris Congenita, Am. J. Dis. Child. **49**:431-447 (Feb.) 1935.

INCONTINENTIA PIGMENTI (BLOCH-SULZBERGER)

REPORT OF AN ADDITIONAL CASE, WITH COMMENT ON POSSIBLE RELATION TO A NEW SYNDROME OF FAMILIAL AND CONGENITAL ANOMALIES

MARION B. SULZBERGER, M.D.

NEW YORK

WITH THE COLLABORATION OF J. FRANK FRASER, M.D., NEW YORK, AND L. HUTNER, M.D., RICHMOND HILL, N. Y.

In 1928 one of the present authors [1] reported and discussed the first case of the rare and peculiar dermatosis incontinentia pigmenti. His detailed report originated in the department of dermatology of the University of Zurich, Switzerland, and the patient had previously been presented by Bloch,[2] of Zurich, at the meeting of the Swiss Dermatologic Society in 1925.

Subsequently, at the tenth meeting of the Swiss Dermatologic Society, Naegeli,[3] of Berne, Switzerland, reported three analogous cases. In Naegeli's brief report familial occurrence, as well as the combination of the pigmentary anomaly with another familial dermatosis, was demonstrated for the first time. A father and two daughters, 12 and 9 years of age, presented the pigmentary dermatosis, while a third child suffered from a cutaneous disease which Naegeli diagnosed as hydroa vacciniforme.

A fifth case of incontinentia pigmenti was reported by Almquist.[4] In Almquist's case a boy of 6 years was affected, and pigmented lesions were first observed during the patient's first year.

These five cases were all discussed in the original communication.[1]

Shortly after that report was made, in 1929, Siemens [5] reported a sixth case in detail, under the name of melanosis corii degenerativa.

From the Skin and Cancer Unit, New York Post-Graduate Medical School and Hospital, Columbia University, service of Dr. J. Frank Fraser.

1. Sulzberger, M. B.: Ueber eine bisher nicht beschriebene congenitale Pigmentanomalie (Incontinentia pigmenti), Arch. f. Dermat. u. Syph. **154**:19, 1928.

2. Bloch, B.: Eigentümliche bisher nicht beschriebene Pigmentaffektion (Incontinentia pigmenti), Schweiz. med. Wchnschr. **56**:404, 1926.

3. Naegeli, O., cited by Sulzberger.[1]

4. Almquist: Personal communication to one of the authors.

5. Siemens, H. W.: Die Melanosis corii degenerativa, eine neue Pigmentdermatose, Arch. f. Dermat. u. Syph. **157**:382, 1929.

Siemens' case had previously been the subject of the inaugural dissertation of Lechleuthner [6] in Munich, Germany, in 1925.

These six cases undoubtedly presented the same type of pigmentary anomaly and are, as far as we have been able to discover, the only reported cases of this particular pigmentary disturbance.

In 1933 the first mention was made of incontinentia pigmenti in the American literature, by one of us.[7] The patient was a Negress aged 3 years who presented pigmented lesions of such characteristic arrangement, color and form that the opinion was ventured that she had incontinentia pigmenti. This case was the seventh.

The common characteristics of all previously reported cases may be summarized as follows: During the first few years of life (sometimes at birth [1] and often soon after birth) the patient presents pigmented macules of such peculiar and characteristic size, color, form and distribution as to distinguish them immediately from those of any other known pigmentary dermatosis. The lesions consist of bizarre, irregularly shaped and irregularly disseminated areas of pigmentation of tan, light brown, dark brown and slate color. The trunk, particularly the sides and the perimamillary areas, and the extremities are commonly affected. The jagged, sharply outlined margins and the arrangement of these areas of pigmentation are all most extraordinary. Certain lesions resemble the irregular veins in some types of marble or look like the effects of a brown spray splashed onto a light-colored wall. The contours of the areas are irregular, pointed or concave and sharply demarcated. In certain parts they consist of irregularly shaped, elongated central bodies, varying in size from that of a pinhead to that of a pea or a bean and with thin, spidery, outstretched arms spreading in all directions. Some of these arms join with those of adjacent areas of pigmentation to form confluent figures, again resembling the configurations of the veins seen in certain types of marble. The entire picture is always so unusual as to be pathognomonic, and the areas of pigmentation are so irregular and peculiar in form and distribution that they seem to be of deliberate and artificial production. There is, as a rule, no definite systematization, no segmentary or zosteriform arrangement and no conformity to the lines of cleavage or to the courses of larger nerves or blood vessels. While the majority of the pigmentary lesions are macules, presenting neither elevation nor infiltration, a few are either slightly elevated or slightly depressed; the latter type seems either atrophic or pseudoatrophic.[1]

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6. Lechleuthner, cited by Siemens.[5]

7. Sulzberger, M., in discussion on Levin, O.: Nevus Reticularis et Pigmentosus, Arch. Dermat. & Syph. **27**:141 (Jan.) 1933.

In all cases in which histologic examination has been made the observations have been uniform and characteristic. There were only slight epidermal changes, usually confined to the basal cell layer, which showed various degrees of irregularity and hydrops of individual cells, as well as some smaller cells with pyknotic nuclei. In general, the pigment in the epidermis was not increased or only slightly increased in certain areas, and these areas of increased epidermal pigment did not necessarily overlie the most heavily pigmented portions of the cutis. The epidermal pigment was almost entirely in the form of the fine powdery granules of melanin normally found in pigment-forming epidermal melanoblasts. It was, in all cases, obvious that the hyperpigmentation seen clinically could not be due to this relatively sparse epidermal pigment but was always attributable to the great increase in melanotic pigment found in the chromatophores of the upper and the middle portion of the cutis. In all the histologic sections of typical lesions there were large numbers of coarse dark granules of pigment in the cutis, mainly within cells which could be identified as connective tissue chromatophores. There were many of these melanin-bearing cells in the cutis, and some were arranged in perivascular conglomerations. In addition to these intracellular deposits, granules of melanin could often be seen in the endothelial cells and even within the blood vessels.

There was usually a variable but always slight degree of inflammation in the upper part of the cutis, with a few lymphocytes and plasma cells, as well as a slight increase of fibroblasts. (The question whether this inflammation was part of a primary causal process or was the result of and secondary to the presence of melanin has been discussed at some length.[1])

There were, as a rule, no dendritic cells in the epidermis. The dopa reaction was positive in the pigmented epidermal basal cells but was always negative in the cutis, even when the heaviest deposits of pigment were seen in the mesodermal cells of the cutis. This reaction showed that there was in all seven cases studied no formation of pigment demonstrable in the cutis—an observation in contradistinction to that of certain pigmentary anomalies, such as the blue nevus of Jadassohn and Tièche and the so-called mongolian spots. In cases of incontinentia pigmenti the cells of the cutis which bore the pigment were always phagocytic chromatophores and not pigment-forming melanoblasts. The histologic picture was that of autochthonous tattooing, as though the epidermis had become incontinent of its own pigment and allowed this to descend into, and thus to tattoo, the cutis. This massive descent of pigment represents an abnormality, for in normally pigmented skin of white persons the greater part of the pigment formed in the basal cells

is transported upward through the epidermis and is eventually eliminated with the desquamating horny layer. These observations of the histologic picture and of the histochemical reactions and their interpretation as the possible results of a pigmentary incontinence and of an abnormal downward passage of epidermal melanin led Bloch and Sulzberger to the choice of the designation "incontinentia pigmenti." [8]

In all cases studied the pigment found in both the epidermis and the cutis was shown to be melanin. The reactions to silver nitrate and to other substances used in determining the presence of melanin were positive, while the reactions for iron-containing blood pigments were negative.

In addition to these clinical and histologic pigmentary characteristics, which have varied only in degree, certain accompanying anomalies have been noted in many of the patients and in their families. In the first two cases—that is to say, both in the patient of Bloch and Sulzberger and the patient of Lechleuthner and Siemens—there were ophthalmologic lesions. In Bloch and Sulzberger's case there was detachment of the retina, and later retrobulbar glioma necessitated enucleation of the eye. Moreover, there was in this case a peculiar type of spotty alopecia of the parietal areas of the scalp; these portions presented numerous fairly sharply circumscribed bald spots, varying in size from that of a 5 cent piece to that of a quarter. The scalp in the bald areas was distinctly atrophic and presented light brown or brownish red hyperpigmentation. Lechleuthner and Siemens' patient, in addition to the characteristic pigmentary anomaly, presented histologically a pronounced degree of the usual slight vacuolation, hydrops and irregularity of the basal cells. This patient was microcephalic and had Little's disease of tetraplegic type, bilateral convergent strabismus, a high palate, a congenital cardiac defect and was mentally subnormal.

As previously stated, Naegeli's three cases [3] were the first examples of familial occurrence, and there was apparently a familial combination with another rare disease of the skin diagnosed by the author as hydroa vacciniforme.

In Almquist's [4] case, the fifth on record, no mention was made of familial occurrence or of any other anomaly.

In Levin's case [9] of the young Negress the clinical appearance of the areas of hyperpigmentation was typical of incontinentia pigmenti,

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8. (*a*) Bloch B.: Das Pigment, in Jadassohn, J.: Handbuch der Haut- und Geschlechtskrankheiten, Berlin, Julius Springer, 1927, vol. 7, p. 434. (*b*) Sulzberger.[1]

9. Levin, O.: Nevus Reticularis et Pigmentosus, Arch. Dermat. & Syph. **27**:141 (Jan.) 1933.

although no confirmatory histologic evidence was available. In this case no other anomaly was apparent, and there was no record of familial occurrence.

The case of incontinentia pigmenti which forms the subject of the present report is, as far as we have been able to determine, the eighth on record (if one includes Almquist's unpublished case and Levin's previously mentioned case).

We are submitting this case not only as the first American report of a relatively rare dermatologic entity but because certain characteristics of the condition of our patient and that of her family speak in favor of incontinentia pigmenti as forming—here, for the first time—part of a syndrome of other familial ectodermal (and other ?) defects. This combination with ectodermal defects may throw some additional light on the pathogenesis of the pigmentary disturbance and, in some measure, supports the original hypothesis that in this cutaneous disease an epidermal defect—namely, epidermal pigmentary incontinence—leads to autochthonous melanotic tattooing of the cutis, a hypothesis first advanced by Bloch [8a] and one of the present authors.[1]

REPORT OF CASE

M. S., an unmarried white woman aged 19, engaged in domestic work, was first seen at the Skin and Cancer Unit of the New York Post-Graduate Medical School and Hospital on Dec. 1, 1936.

The patient's personal history contained no pertinent information, with the exception of the following: The birth was normal and without injury. The left eye was blind at birth. The general development was satisfactory, with the exception of the teeth, the hair and the nails and of cutaneous hyperpigmentation. The hyperpigmented cutaneous areas were said to have been present at birth. The changes in the nails were first noted approximately one and one-half years prior to our first examination.

The patient had had the common diseases of childhood, including measles, mumps, chickenpox and whooping cough. In 1927 she suffered from articular swellings, diagnosed as "rheumatism." There was no cardiac disease. In 1928 an enlarged cervical gland was removed surgically.

The menstrual periods began at the age of 11 years and were irregular, at intervals of from three to seven weeks, scant and of from two to four days' duration. There was no dysmenorrhea. The libido was normal. There had been no venereal infection.

The patient was small, with a small skull and small bony structure of the hands, the feet, the arms and the legs. There was no consanguinity of parents or of grandparents.

The family history of the patient was noteworthy: She had two brothers and one sister. The patient's mother, her sister aged 30 and her niece (the daughter of the sister) all suffered from various degrees of the same congenital ectodermal anomalies. The patient's father, brothers and nephew (brother of the affected niece) were all normal. It was thus obvious that in this family the female members were affected and the male members were normal.

The family tree (fig. 1) clearly illustrates the distribution of the anomalies among the females.

The disease in the various members of the family consisted of varying degrees and combinations of malformation and disturbances in the growth of the teeth, the nails and the hair of the scalp. In the patient's niece there was blindness of the left eye. The dental changes consisted of abnormally small teeth, some being deciduous and others of permanent type, and reduction in the number of teeth formed and erupted. The patient's mother was said to have had only twenty-eight teeth. The 30 year old sister had only sixteen teeth; the 5 year old niece, only ten.

The mother, the sister and the niece presented transverse and longitudinal fissuring, discoloration and friability of the nails, with roughened surfaces and

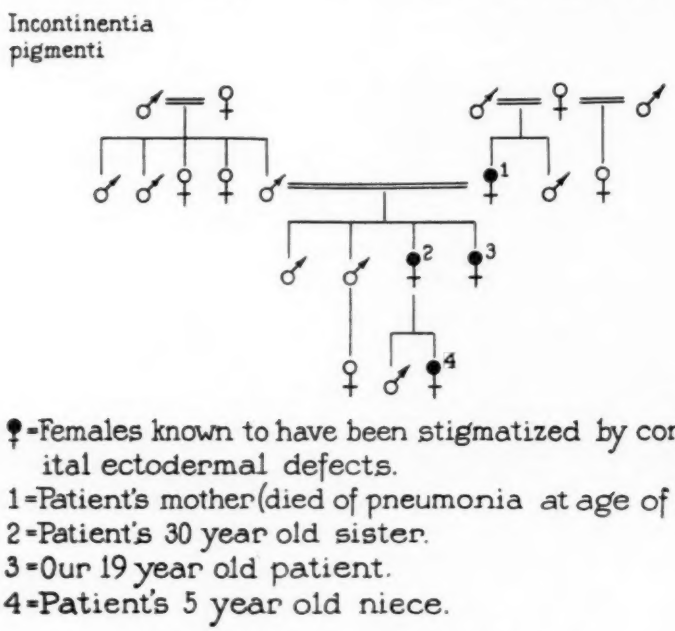
Incontinentia pigmenti
1
2
3
4
♀-Females known to have been stigmatized by congenital ectodermal defects.
1=Patient's mother (died of pneumonia at age of 30).
2=Patient's 30 year old sister.
3=Our 19 year old patient.
4=Patient's 5 year old niece.

Fig. 1.—Genealogic tree of our patient, M. S.

some tendency to flattening and the formation of spoon nails. All three had sparse hair on the scalp, with permanent bald spots.

When the first cursory inspection was made, the patient appeared to be well nourished, small and of normal general physical and mental development. The hair of the scalp was somewhat sparse, fine and dry and presented an area of sharply circumscribed alopecia (fig. 2).

The patient's left eye was defective. She stated that she had been blind in this eye since birth (as mentioned, the patient's 5 year old niece had been blind in the left eye since birth). All the finger nails presented longitudinal and horizontal ridges. Some were short, torn, friable and slightly discolored. The surfaces were somewhat concave or flat.

The pubic, axillary and other body hair was normal. Perspiration was normal.

There was typical molluscum contagiosum the size of a large pea on the left breast, apparently a chance and unrelated finding. This lesion was removed surgically, and the histologic picture confirmed the clinical diagnosis.

There were only two teeth present (at the sites of the canines on the lower jaw); these were both small and deciduous. (The patient stated that only ten teeth erupted and that eight of these subsequently fell out.)

The skin presented peculiar and characteristic pigmented lesions, which will be described later in detail.

The further general examination of the patient consisted of complete studies of blood and urine, including serologic examinations to exclude syphilis; endocrinologic, neurologic and ophthalmologic examinations, and roentgenographic study of the skull.

All findings were normal, with the exception of the abnormalities specifically mentioned in the following summaries:

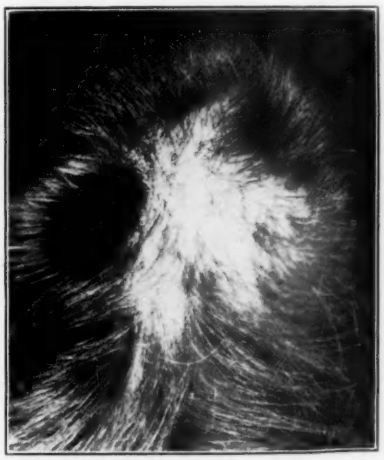

Fig. 2.—The scalp, showing scleroderma-like changes and alopecia.

Endocrinologic examination showed no abnormality, except the irregular and scant menses, the abnormally small bony structure of the extremities and the skull,[10] and the defective ectodermal appendages (teeth, nails, hair and lens [?]).

10. The small skull of our patient was apparent on both clinical and roentgenographic examination. This seems of particular interest in connection with Siemens'[5] case of incontinentia pigmenti with microcephalus. This finding in our case, together with other bony changes (sella turcica) and the menstrual, pigmentary and other anomalies, suggested that we might be dealing with some unusual syndrome dependent on pituitary dysfunction. However, no other evidence of pituitary dysfunction was present. The decision as to whether or not organic pituitary disease is present in incontinentia pigmenti must in all probability await the results of the first autopsies in such cases.

The roentgenographic studies of the skull and the hands were performed by Dr. W. H. Meyer, who, on Dec. 29, 1936, submitted the following report:

"Examination of the skull and the hands showed these to be somewhat undersized, though otherwise no gross developmental disturbance of the epiphyses was observed. In the skull the bones of the vault and the base were comparatively

(Footnote continued on next page)

The distribution of the body hairs and of the fat was normal. Chemical determinations on the blood and the urine gave normal results, including normal figures for sugar, lipoids, calcium, phosphorus, cystine and chlorides. The basal metabolic rate was within normal range.

On Jan. 15, 1937, the neurologic status was normal, with the exception of the following: There was a dilated right pupil, reacting well to light but barely to accommodation, and slight pallor of the right temporal disk. The congenital defect prevented neurologic examination of the left eye. The abdominal reflexes were absent. The left knee jerk was exaggerated.

Ophthalmologic examinations were performed by two different specialists,[11] who arrived at approximately the same conclusions, as follows:

There was no history of disease or injury to the eyes. The patient had experienced the existing condition all her life.

The external examination of the right eye by oblique illumination showed it to be normal in every respect. The left eye was convergent 25 degrees, but the motility was satisfactory.

The conjunctiva was normal; the cornea was opaque and calcareous in the horizontal meridian, the involvement being affected by the lids; the anterior chamber was irregular and shallow; the iris was blue but atrophic, and the lens was opaque.

The ophthalmoscopic examination of the right eye revealed clear and transparent media and a normal fundus. That of the left eye could not be made, because of the opacity of the cornea.

The refractive examination disclosed vision of the right eye varying from 20/20 to 20/16; the left eye was not even capable of perception of light.

In conclusion, the diagnosis was calcareous opacity of the cornea of the left eye, with changes in the lens and convergent strabismus.

Both ophthalmologists agreed that the changes might have been congenital, but both pointed out that it was at least equally possible that some injury or disease in utero or in early life was responsible for the ocular condition.

These were the major pertinent nondermatologic findings in our case.

The strictly dermatologic lesions included those of the hair and the nails and the characteristic pigmentary disturbance.

The hair of the scalp was in general normal, though perhaps slightly finer, dryer and sparser than in the average young woman of our patient's age.

In an irregularly shaped area—approximately 1 inch (2.5 cm.) wide and 3½ inches (9 cm.) long—medial to the left parietal region, there was complete

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normal in contour. The sella turcica was shallow, yet its ventrodorsal diameter was increased by approximately 15 per cent.

"The clinoid processes were rather thin, with the posterior vertically placed. On the other hand, there was no evidence of erosion, and no pressure atrophy was discernible.

"There was complete absence of upper teeth, and only two lower canines remained in situ. With these there appeared to be considerable alveolar retraction, as well as pericemental widening.

"The mastoids were of well developed pneumatic type. These, as well as the accessory nasal sinuses, showed fair transillumination.

"Conclusion: The sella was relatively large; yet the skull and the bones of the hands were small and of dwarf type; the teeth were absent, only two lower canines remaining in situ."

11. Drs. Ben Witt Key and C. A. Thomson, both of New York.

alopecia, said to have been present at birth. The skin there was thickened, felt "hidebound," with thin atrophic epidermis without visible follicles, and was of scleroderma-like consistency and appearance. The lesion on the scalp was clinically similar to scleroderma *en coup de sabre* (fig. 2).

All the nails of the fingers (fig. 3) were affected. They were thinner than normal, flattened or spoon shaped and presented slightly yellow discoloration and both longitudinal and transverse shallow, depressed striae. The nails were brittle and friable, and some were irregularly broken off at the free margins (fig. 3). The condition of the nails was first noticed one and one-half years before our examination. Prior to that time the nails seemed normal. The toe nails were apparently normal at the time of examination. (As before stated, the patient's mother and 5 year old niece [her sister's daughter] were said to have alopecia, changes in the nails and dental abnormalities similar to those presented by our patient. The 30 year old sister, who was seen but only cursorily inspected, presented apparently identical alopecia and changes in the nails. None of the male

Fig. 3.—The patient's finger nails, showing a thin, irregular nail plate, a broken edge on the left middle finger and almost complete absence of nail on the left little finger.

members of the family [father, two brothers and nephew] was in any way affected [fig. 1].)

The hyperpigmented cutaneous lesions were in every essential those of incontinentia pigmenti. The clinical appearance was so characteristic that the case was, at first inspection, identified with the 5 cases previously observed by one of the present authors. The histologic appearance and the histochemical reactions were equally characteristic and confirmed the diagnosis.

Since the macroscopic and microscopic morphologic picture conformed so closely to those of previous cases, the composite description given previously covers the essentials in our case. We shall, therefore, avoid unnecessary repetition and here present only the more important features and individual differences found in our patient.

The individual bizarrely shaped, irregular, jagged, tan to slate-brown areas of hyperpigmentation were in our patient somewhat larger than those observed in the affected children previously seen by Sulzberger. It seemed that the growth of

these lesions had kept pace with the general growth of the 19 year old patient. The pigmented areas were neither elevated nor depressed; there was no palpable change in the skin's consistency, no atrophy and no erythema or other sign of inflammation. The distribution was unilateral, a feature which, as far as we know, was never previously observed. The left side only was affected, the left axilla, the left breast and the left side of the trunk and of the abdomen being the principal sites of the peculiar, irregular, jagged, interlaced arrangement of hyper-

Fig. 4.—The patient's left side, with typical bizarre, jagged, irregular pigmentations.

pigmented spots which resembled a ribbon or a filament and in some areas was vaguely zosteriform (fig. 4).

Histologic examination of two of the pigmented areas revealed a picture identical with that seen in all previously reported cases of incontinentia pigmenti examined (see colored photomicrographs in Sulzberger's paper [1]). There were few changes in the epidermis beyond slight irregularity and hydrops of the basal cells in certain areas. Some of these cells were large, with lighter-staining vesicular nuclei, while others were small or showed nuclear pyknosis. There was sparse,

fine, powdery intracellular pigment in certain basal cell areas but no abnormal increase of epidermal pigment. The dopa reaction was positive in these pigmented basal cells.

The upper third of the cutis—particularly the papillary portion—presented extensive and massive deposits of pigment, mainly intracellular, in the form of large clumps of coarse melanin granules within chromatophores. The dopa reaction was negative in these areas and throughout the cutis.

The reaction to silver nitrate was positive in the pigment of both the cutis and the epidermis. Perl's stain for iron-containing blood pigment gave negative results throughout.

It may thus be concluded that the pigment seen was melanin in the process of formation in the epidermis (dopa positive) but not in the cutis (dopa negative); and the interpretation given in previous cases is here again permissible, namely, that a pigmentary incontinence of the epidermis permitted an abnormal descent of pigment to the cutis and there led to phagocytic storage or autochthonous tattooing. Detailed discussions of various possible pathogenetic mechanisms of this phenomenon have been given by Bloch [8a] and by Sulzberger.[1] It may here be stated that experiments have shown that experimental injection of "dopa melanin" into the cutis produces a tattooing which may persist in almost its original intensity for at least six years.[12] While the ultimate fate of the pigmentary deposits in incontinentia pigmenti is not known, the observations of Sulzberger in the first case [1] and of subsequent observers [13] all indicate that there is, as a rule, an exceedingly slow but nevertheless steady and progressive absorption and diminution of the pigment of the cutis.

In addition to the pigmentary deposits, there was but little inflammatory response in the cutis. A few lymphocytes and plasma cells were seen about the blood vessels, and slight interstitial edema was present.

COMMENT

The case here submitted is, as far as we could ascertain, the eighth recorded case of incontinentia pigmenti. The pigmentary lesions were macroscopically and histologically so typical as to leave no doubt of the diagnosis. We believe that dermatologists acquainted with this characteristic and extraordinary picture will be able to identify at a glance any such cases they may encounter in the future.

The pigmentary disease and various theories as to its pathogenesis have been fully discussed in the original report.[1] It is therefore unnecessary here to do more than state that the remarks concerning the original case are fully pertinent to the present example of this anomaly. However, our case is, as far as we know, the first recorded instance of a combination of incontinentia pigmenti with the familial and personal occurrence of ectodermal and other defects. It seems illogical to attribute to chance the combination of the rare pigmentary anomaly which was present at birth, the uncommon type of faulty dentition, the unusual changes in the nails, the peculiar alopecia and the uncommon

12. Miescher, G., cited by Sulzberger [1] and Bloch.[8a]

13. Bloch.[2] Siemens.[5]

ophthalmologic disease, all found only in the female members of this family. On the contrary, it is, in our opinion, highly probable that in our case this combination was based on an underlying, hereditary and familial anomaly and thus formed part of a hereditary familial syndrome. The fact that this syndrome occurred only in the female, while sparing the male members of the family, by no means proves but nevertheless speaks strongly in favor of the role of alterations of the genes themselves.

An analysis of the other cases of incontinentia pigmenti demonstrates that combinations with ophthalmic lesions (Sulzberger,[1] Siemens[5]) were present in at least two of the previous seven cases. Moreover, both the familial occurrence and the combination with another familial anomaly of the skin (hydroa vacciniforme) were demonstrated in Naegeli's[3] three cases. Nevertheless, our case directs attention to at least two new and perhaps important features: (1) the combination of typical pigmentary cutaneous lesions, ocular lesions and alopecia, with the partial syndrome of so-called congenital ectodermal defects (defects in dentition and anomalies in the nails), and (2) the apparently sex-bound transmission of the syndrome of anomalies of skin, hair, nails, eyes and teeth. This combination with so-called ectodermal defects seems of more than casuistic importance, for it may throw some further light on the pathogenesis of the pigmentary lesions. In 1928 one of us[1] discussed the role of hereditary factors and epidermal defects in the production of congenital pigmentary lesions in cases of incontinentia pigmenti. The following conclusions and hypotheses were submitted at that time: The pigmentary lesions are congenital, based on intrauterine cutaneous changes. It seems highly probable that these intrauterine changes lead to an ectodermal, epidermal defect, to a pigmentary incontinence of the basal cells. This epidermal defect permits the pigment to stream into the cutis, instead of being passed upward and finally desquamated in the normal fashion. This dripping down of melanin in turn leads to phagocytosis of the large granules of pigment by the chromatophores of the cutis and to the histologic and clinical picture of autochthonous melanin tattooing.

It is apparent that our present case, exhibiting as it does the personal and familial combination of other ectodermal defects, lends support to the original hypothesis that the pigmentary lesions are attributable to defects of the epidermal basal cells.

It is of course not demonstrated that in all cases incontinentia pigmenti is based on familial and hereditary defects of the basal cells. It seems to us possible that such defective functioning of the basal cells —while it may in many cases be attributable to hereditary changes— may nevertheless, in certain other cases, be due to inflammation, trauma

or other harmful intra-uterine or extra-uterine nonhereditary factors. Thus, the pathognomonic pigmentary changes of incontinentia pigmenti, which in Naegeli's [3] three cases and in our present case were apparently connected with hereditary disturbances, may, in other cases, with an identical morphologic picture, be produced by fortuitous nonhereditary damage to the basal cells.

SUMMARY AND CONCLUSIONS

The eighth recorded case of a rare pigmentary anomaly (incontinentia pigmenti of Bloch and Sulzberger) is presented.

The characteristic findings of the previous cases are summarized and discussed. It is noted that the familial occurrence, as well as the combination with ocular lesions and other congenital defects, have been found in the earliest reported cases of this pigmentary anomaly.

The present case exhibits the heretofore undescribed combination of typical bizarre, irregular, jagged-edged, light brown to slate-colored cutaneous lesions with both personal and familial defects of the eyes, the hair, the nails and the teeth (so-called congenital ectodermal defects). This case is further remarkable in the fact that only the female members of the family were affected, the males being immune.

The histologic observations conform with those of all the cases of incontinentia pigmenti in which histologic examination has been made. The hyperpigmentation is not found to be due to increased epidermal formation of pigment but to the heaping of large deposits of melanin in the chromatophores (phagocytes) of the cutis.

The original hypothesis that the peculiar picture is due to pigmentary incontinence of the damaged basal cells is reviewed. According to this hypothesis, the damage to the basal cells is such that a large quantity of epidermal pigment is permitted to descend into the cutis, instead of being transported upward to be desquamated in the normal fashion. This descent of pigment leads to autochthonous melanin "tattooing."

It is pointed out that this first reported combination of incontinentia pigmenti with other ectodermal defects in our patient and in her family lends new support to the hypothesis of damage to the basal cells as the basis for the pigmentary changes.

Attention is called to the fact that such damage to the basal cells and the resulting pathognomonic pigmentary changes of the skin may be due, in many cases, to hereditary factors but that in other cases similar or identical damage to the basal cells and identical histologic and clinical pigmentary changes may be the result of intra-uterine or extra-uterine fortuitous and nonhereditary influences.

962 Park Avenue.

SURVEY OF SYPHILIS AMONG STUDENTS AT UNIVERSITY OF WISCONSIN

LLEWELLYN R. COLE, M.D.
Director, Department of Student Health, University of Wisconsin
MADISON, WIS.

During the past year there has been considerable agitation at the University of Wisconsin concerning syphilis, owing largely to the great publicity the disease has received in the lay press.

The Department of Student Health at the university thought it desirable to obtain information concerning the incidence of syphilis among college students from all walks of life. However, it was predicted in advance that there was relatively little syphilis in this class of citizens. In the propaganda that was published no words were minced, and the entire student body had a clear conception of the disease. An elaborate setup was established to assure to each student protection of his or her identity, and every student was given an opportunity to have a Wassermann test made. This was done in cooperation with the Psychiatric Institute of this university, where the great majority of Wassermann tests of blood and of spinal fluid are performed for physicians of the state under the direction of Dr. William F. Lorenz.

The procedure was arranged after careful planning. It was felt that certain statistical information could be obtained without identifying the subject and before I give the results of this survey I shall present a brief description of the mechanics of the procedure, for the benefit of any one desiring to conduct a similar voluntary program.

PROCEDURE

A physician in the clinic, assisted by two nurses who were carefully instructed before beginning the work, took the specimen of blood. The patient was told to lie on a regular examining table, and the first nurse prepared a 10 cc. syringe with needle attached. The second nurse placed a tourniquet around the patient's arm and prepared the site of blood letting. She made the necessary notations concerning the patient's sex and the section of the country from which he came on data sheets and numbered the sheets in rotation for each day. The date and a duplicate number were placed on a card and given to the patient, so that he might identify the test when he returned for the result forty-eight hours later. The physician drew the blood and ejected it into a tube, on which was placed the patient's number. The process was originally scheduled to take three minutes, but it was found that it took less time as experience increased. No accidents were reported.

The results were posted at the testing station forty-eight hours after the test was made, and the student could note the result posted after his number without identifying himself.

A postcard was sent to every student in the university, inviting him to have a test made on a certain day. A total of 11,102 cards was sent out from the clinic.

ANALYSIS OF RESULTS

With the enthusiasm incident to the inauguration of such a program, the response was high at the beginning but gradually fell off as the novelty decreased. The response was 59 per cent the first week, but in the course of the next fourteen weeks fell to 24 per cent. The fifteenth week showed a further decrease to 15 per cent, owing to the fact that many students were taking examinations at the time. As the number of responses decreased, it was possible to increase the number of cards sent out and thus keep pace with the capacity of the clinic. A total of 3,389 tests was done on 30.5 per cent of the student population; 2,442 were on males and 944 on females. In 3 cases sex was not reported.

Classification of Subjects Tested

Rural	Urban	Wisconsin	Other Middle West	East	South	West	Foreign
1,912	1,474	2,834	230	176	68	40	33

The urban group included those from cities of 50,000 population or over and the rural group those from cities or communities of less than 50,000 population. Sections of the country were designated as Wisconsin, Middle West (other than Wisconsin), East, West and South; persons from outside the borders of the United States were classified as foreign.

It was felt that if syphilis was discovered it would be found in the urban group, aside from occasional cases in which congenital syphilis had been unrecognized up to college age. The table shows the results obtained. (It is to be noted that the rural and the urban group do not total 3,389, because 3 of the reports failed to indicate locality, and the remaining figures are short of the total by 8 for the same reason.)

RESULTS SUMMARIZED

As was predicted before the program was started, a negligible amount of syphilis was found among students at the University of Wisconsin. In 2 cases a persistent 1 plus reaction and in 1 case a 2 plus reaction were found. The 2 patients with 1 plus reactions were women from rural Wisconsin, and the 2 plus reaction was that of a man from rural Wisconsin.

Two men from urban centers in Wisconsin were discovered to have 4 plus reactions. These patients reported to us and were referred to private physicians for treatment.

Six doubtful reactions were reported, but the subjects never showed anything more than doubtful reactions.[1]

SUMMARY AND CONCLUSIONS

The Department of Student Health at the University of Wisconsin in 1937 conducted a voluntary survey of syphilis in which 30.5 per cent of the students took part. A negligible amount of syphilis was discovered, there being 2 cases of active syphilis and 3 cases in which there was a 1 plus or a 2 plus reaction. Six doubtful reactions were reported.

A legitimate criticism that the student with known syphilis will not report in a voluntary program of this type may be raised. Syphilis, however, seems to be extremely rare. Out of approximately 2,000 admissions to the infirmary and approximately 50,000 outpatient visits during any year, 1 or 2 is the maximum number of cases of syphilis discovered.

Wassermann tests should be performed as a routine on each newly entering student and on each graduating student.

This survey was instigated primarily by Dr. William F. Lorenz, Director of the Psychiatric Institute, University of Wisconsin.

1. All subjects with positive or doubtful reactions were advised to have the test repeated and to give their previous numbers so as to check the results. One subject with a 3 plus reaction had severe Vincent's gingivitis, and the results of repeated tests were negative or doubtful when the gingivitis was controlled by treatment.

Clinical Notes

ERYTHROMELALGIA

Report of a Case of Its Association with Chronic Gout with Relief of Symptoms for Two Years After Intravenous Administration of Typhoid Vaccine

JOSEPH MARKEL, M.D., MANCHESTER, PA.

Erythromelalgia was first described by Graves [1] in 1864 and by Mitchell [2] in 1872 and is characterized by shooting, throbbing or burning pains associated with duskiness, congestion or redness of the affected part. The five essential features necessary for establishing a diagnosis are: (1) burning pain in the hands or the feet, (2) aggravation of symptoms by heat or exercise, (3) relief by elevation, rest or cold, (4) increased local heat and (5) refractoriness to treatment.

REPORT OF CASE

History.—On Nov. 5, 1936, I was called to see J. F., a white man aged 50, a laborer. He had both feet suspended in a basin of cold water in order to obtain relief from local burning and throbbing pain. They were swollen and hot to the touch but did not pit on pressure. The symptoms were aggravated by local pressure, suspension in warm water or application of an electric pad. The illness had begun when the patient was 30 and occurred during the winter, when the patient was confined indoors. He had had spontaneous remissions for the past twenty years, occurring with the onset of spring and lasting until the following winter. Relief was obtained by administration of large doses of salicylates, suspension of the feet in cold water and cupping.

Examination.—The patient was short (65 inches [165 cm.]), obese (220 pounds [100 Kg.]) and plethoric. His complexion was ruddy. Examination of the head, the neck, the chest and the abdomen showed no abnormality except tachycardia, the pulse rate being 180. This could be controlled by pressure over the carotid artery and the vagus nerve. The blood pressure was 150 systolic and 92 diastolic. There was no palpable sclerosis of the radial, the brachial or tibial arteries. The left knee appeared swollen and was tender, semiflexed and painful, the pain being aggravated by motion. The patient had received treatment for "arthritis" in the past five years. The type of pain in the knee did not resemble the burning and throbbing in the feet, and the attacks in the knee did not have any relation to the onset of attacks in the feet. The urinalysis and the blood count showed no abnormality. The Wassermann reaction was negative. Chemical examination of the blood showed 6 mg. of uric acid per hundred cubic centimeters.

Course and Treatment.—In view of a high content of uric acid in the blood, a gouty knee and tachycardia, I first thought the burning, throbbing and duskiness

1. Graves, R. J.: Clinical Lectures on the Practice of Medicine, Dublin, Fannin & Co., 1864, p. 826.

2. Mitchell, S. W.: Clinical Lecture on Certain Painful Affections of the Feet, Philadelphia M. Times **3**:81 and 113, 1872-1873.

occurring in the feet every winter were due to vascular instability and changes in the tibial vessels associated with chronic gout. A routine low purine diet and neocinchophen tablets were prescribed, and in four weeks there were great alleviation of symptoms in the left knee and a greater range of mobility but no beneficial influence on the lesions in the feet. Typhoid-paratyphoid vaccine was administered intravenously every other day in ascending dosage for twelve injections. The initial dose was 0.2 cc.; this was increased by 0.2 cc. at each dose until a maximum of 1 cc. was obtained and sustained. With each chill the patient noticed relief of burning and throbbing in the feet. This form of therapy was begun on Dec. 5, 1936, and completed by Dec. 30, 1936, at which time there was complete absence of pain, swelling and duskiness. Since institution of typhoid vaccine therapy there has been no recurrence, and the patient has not been disabled for the past two winters. The only symptom noticed is an occasional mild burning sensation over the dorsal regions of the feet.

COMMENT

Opinions as to the cause of erythromelalgia still vary. Mitchell attributed the entity at first to a rare vasomotor neurosis of the extremities. Later he expressed the belief that it was due to peripheral neuritis, disease of the nerve trunk or organic disease of the spinal cord. Collier [3] reported 10 cases of erythromelalgia, in 6 of which there was associated multiple sclerosis, in 2 tabes, in 1 traumatic neurosis and in 1 myelitis. Mumford [4] described a case in which apparent monolateral erythromelalgia of hysterical origin appeared in a girl three months after a burn of the hand.

Erythromelalgia must be differentiated from polycythaemia vera, from the toxic effects of thallium, of mercury and of arsenic, from arteriosclerosis, from gout and from paresthesias of central origin.

SUMMARY

A case of erythromelalgia associated with chronic gout is reported. Treatment with typhoid vaccine intravenously produced marked alleviation of symptoms, and there has been no recurrence in over two years.

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3. Collier, J.: The Occurrence of Erythromelalgia in Disease of the Spinal Cord: An Account of Ten Cases, Lancet **2**:401, 1898.

4. Mumford, P. B.: Case of Monolateral Erythromelalgia of Apparently Hysterical Origin, Brit. J. Dermat. **41**:478 (Dec.) 1929.

PITYRIASIS ROSEA SPARING TANNED AREAS OF THE SKIN (BATHING TRUNK DISTRIBUTION)

MAURICE J. COSTELLO, M.D., NEW YORK

The effect of sunlight in preventing certain diseases of the skin such as psoriasis is well known. In a person whose body has been tanned by exposure to the sun an eruption of pityriasis rosea may avoid the tanned areas.

Pityriasis rosea occurring on untanned bathing trunk area.

I have recently observed a number of cases of pityriasis rosea confined to the "bathing trunk" region and other areas of the body protected from sunlight.

REPORT OF A CASE

M. R., a man aged 31, acquired a deep tan on the body during the summer of 1937. Some of this tan was still apparent in January 1938. He stated that

an eruption began on Jan. 16, 1938, with a superficial oval pinkish scaly patch the size of a 25 cent piece on the the right lower quadrant of the abdomen. About five days later he noticed a number of similar but smaller lesions exactly on the area covered by the bathing trunks, in the axillas and on the upper and inner aspects of the arms. The lesions remained confined to these areas during the entire course of the eruption, which finally disappeared about the middle of February.

Roentgen rays may have the same effect as light. A woman was treated by me with roentgen rays because of a superficial dermatosis confined to the left side of the chest. Later a fairly profuse eruption of pityriasis rosea developed, sparing the areas that had been previously irradiated.

News and Comment

ASSEMBLY OF LABORATORY DIRECTORS AND SEROLOGISTS

An assembly of laboratory directors and serologists will be held under the auspices of the committee on evaluation of serodiagnostic tests for syphilis, with Surgeon General Thomas Parran chairman, on Oct. 21 and 22, 1938, at Hot Springs National Park, Ark. All workers from private, hospital and public health laboratories, as well as physicians and health officers interested in the control of syphilis, are invited.

The purpose of the assembly will be to consider methods of improving and making more generally available the serologic tests for syphilis. Tentative arrangements include a program in four sections.

The first section will consider the need for adherence to conventional technic in the routine performance of reliable serodiagnostic tests. The need for training of laboratory personnel will be the subject discussed by the second section. The third section will discuss studies to evaluate the performance of serologic tests within the states. The efficiency of branch state laboratories and of municipal, hospital and private laboratories cannot be studied on a national basis. The fourth section will consider the desirability of the licensing or approving of laboratories by the respective state departments of health.

An additional feature of the meeting will be an actual performance of the Eagle, the Hinton, the Kahn, the Kline and the Kolmer test by their originators.

It is to be hoped that the attendance at this assembly will be large. Those interested in obtaining further information should write to the Surgeon General, United States Public Health Service, Washington, D. C.

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY

If the number of candidates warrants it, an examination for certification by the American Board of Dermatology and Syphilology will be held in St. Louis on Friday and Saturday, November 11 and 12, immediately before the meeting of the American Academy of Dermatology and Syphilology. The latest date for receipt of applications will be September 1 for class B and October 1 for class A.

Further information may be obtained from the secretary, Dr. C. Guy Lane, 416 Marlboro Street, Boston.

Abstracts from Current Literature

EDITED BY DR. HERBERT RATTNER

THE ACTION OF SHORT RADIO WAVES ON TISSUES: II. TREATMENT OF ANIMAL TISSUES IN VIVO. FRANK DICKENS, STANLEY EVANS and HANS WEIL-MALHERBE, Am. J. Cancer **30**:341 (June) 1937.

Regression of tumor tissue was found to depend on the effects of temperature and not on wavelength, there being no regression unless the temperature rose above a certain critical value. The temperature required to produce regression of the tumor was the same on all wavelengths studied, which ranged between 3 and 4.5 meters.

CANCER AND HUMAN RACES. C. BONNE, Am. J. Cancer **30**:435 (July) 1937.

The author found the incidence of cancer in the Far East to approximate that in the West in the same age groups. Among his observations was that of an unusually high incidence of cancer of the skin of the legs in male Malays. This was attributed to neglect of ulcers of various origins. In 6,000 autopsies on natives and Chinese in Batavia, Java, cutaneous cancer ranked fourth in frequency among malignant growths, usually causing death through invasion of the bones of the legs and the feet and through metastases.

METASTASES IN SQUAMOUS-CELL CARCINOMA. E. M. BURKE, Am. J. Cancer **30**:493 (July) 1937.

In a series of 440 autopsies at the State Institute for the Study of Malignant Disease, Buffalo, there were 186 cases of primary squamous cell epithelioma, in 70 of which there were metastatic lesions. Frequency of metastasis did not appear to be influenced by the site of the primary lesion or the duration of the disease but varied directly with the degree of malignancy, as determined by histologic grading. The most frequent sites of metastases, in the order named, were the lungs, the liver, the adrenal glands and the bones. There were 20 cases of cutaneous involvement of which the site in 7 was the genitalia and in 4 the lips. Of the remaining 9, there were distant metastases in only 3, the involvement in others being regional..

XERODERMA PIGMENTOSUM WITH CARCINOMA OF THE LOWER LIP IN TWO BROTHERS, AGED SIXTEEN AND THIRTEEN YEARS. E. T. BELL and T. P. ROTHNEM, Am. J. Cancer **30**:574 (July) 1937.

Two brothers, aged 16 and 13 years, exhibited early lesions of xeroderma pigmentosum and squamous cell epithelioma of the lower lip developed in each. The diagnosis of epithelioma in each case was confirmed by histologic examination, and each lesion healed after intensive roentgen therapy of the lip and the regional glands. The father and the mother, aged 52 and 40 years, respectively, were second cousins and of Swedish descent.

FOERSTER, Milwaukee.

THE INADEQUATE TREATMENT OF EARLY SYPHILIS (CLINICAL RESULTS IN FOUR HUNDRED AND NINE PATIENTS). PAUL D. ROSAHN, Am. J. M. Sc. **193**:534 (April) 1937.

Rosahn reviewed the records of 409 patients admitted to a clinic for persons with syphilis who gave a past history of early syphilis followed by inadequate treatment (less than twenty injections). Treatment of 134 patients (33 per cent) had achieved a satisfactory result; 75 per cent of these were observed five or more years after their last treatment.

Better results were obtained after the continuous system of treatment. The highest proportion of satisfactory results was obtained when treatment was begun in the seronegative primary stage.

The largest proportion of late relapses involved the central nervous system.

ADRENAL CORTICAL ADENOMA WITH ABSENCE OF THE OPPOSITE ADRENAL. F. D. W. LUKENS, HARRISON F. FLIPPIN and F. M. THIGPEN, Am. J. M. Sc. **193**:812 (June) 1937.

A patient having a tumor of the adrenal cortex presented the fully developed picture of Cushing's syndrome, including purple striations over the breasts, the axillae and the abdomen. The skin was dry, coarse and inelastic. Over the cheeks, the upper lip, the chin and the back there was an excessive growth of hair. There was partial baldness of the scalp.

There was no pituitary tumor, but the left adrenal gland was absent. There was an encapsulated cellular tumor of the right adrenal gland, the tumor cells being of the cortical type.

VISCERAL PATHOLOGY IN MEASLES: A CLINICO-PATHOLOGIC STUDY OF ONE HUNDRED FATAL CASES. JOHN A. DEGEN JR., Am. J. M. Sc. **194**:104 (July) 1937.

Degen reviewed the sections from 100 autopsies of patients dying of measles. In 60 per cent of cases the disease occurred between the ages of 6 and 24 months. Death was usually in the second or the third week. No pathognomonic lesion was observed, the most constant microscopic observation being an interstitial infiltration of mononuclear cells resembling a similar infiltrative process found extensively in cases of scarlet fever.

Sections of the skin were studied in 11 cases. They showed lymphocytic infiltration of the corium and occasional scaling. Slight endothelial changes were observed in 4 cases, but in none were there the marked change and proliferation of these cells described by other observers.

LYNCH, St. Paul.

INFECTIONS OF THE DANGEROUS AREAS OF THE FACE. URBAN MAES, Ann. Surg. **106**:1 (July) 1937.

The author cites the anatomic and physiologic features of "the dangerous area of the face," extending from the labial angles to the bridge of the nose, which especially predispose it to serious infections, but stresses the more important role of trauma in their production. Twenty cases in which death ensued are reviewed. The importance of reliance on conservative measures is emphasized.

WIEDER, Milwaukee.

TORULA INFECTION OF THE CENTRAL NERVOUS SYSTEM. EDWARD A. LEVIN, Arch. Int. Med. **59**:667 (April) 1937.

Levin describes a case of torula infection of the central nervous system and reviews the differential diagnosis. This condition is of interest to dermatologists, because the symptoms may resemble those of neurosyphilis and because the cutaneous lesions must be differentiated from those of blastomycosis and other higher fungi.

CAUSE OF DEATH IN TULAREMIA. LEE FOSHAY, Arch. Int. Med. **60**:22 (July) 1937.

Of the four clinical types of tularemia, the ulceroglandular type results in the greatest number of fatalities, because it is by far the most common clinical form of this disease. The typhoid type is less common but much more often fatal.

Foshay suggests that involvement of the skin and of the subcutaneous tissues raises the level of defense of the tissues and the humors and is advantageous to the patient.

MONOCYTIC LEUKEMIA: CUTANEOUS MANIFESTATIONS OF THE NAEGELI AND SCHILLING TYPES; HEMOCYTOLOGIC DIFFERENTIATION. HAMILTON MONTGOMERY and CHARLES H. WATKINS, Arch. Int. Med. **60**:51 (July) 1937.

Montgomery and Watkins report 5 cases of monocytic leukemia with cutaneous manifestations, 2 of the Naegeli and 3 of the Schilling type. It is their belief that primary autochthonous cutaneous involvement occurred in 1 or possibly 2 cases of the Schilling type and in 1 case of the Naegeli type, as contrasted with secondary terminal cutaneous lesions in the remaining case of each type.

The interrelationships of the various forms of leukemia are discussed.

The authors are the first to describe exfoliative dermatitis as a manifestation of monocytic leukemia; it was observed in 2 cases of the Schilling type.

LYNCH, St. Paul.

AN ERYSIPELAS-LIKE ERUPTION COMPLICATING DERMATOPHYTOSIS. E. F. TRAUB and J. A. TOLMACH, J. A. M. A. **108**:2187 (June 26) 1937.

Traub and Tolmach report 8 cases of lesions on the feet and the legs simulating erysipelas. In each instance fungi were demonstrated in the nails or on the webs of the feet. In 1 case passive transfer tests were carried out. These tests showed a positive reaction to trichophytin but negative reactions to oidiomycin and to various types of streptococci and staphylococci.

RECURRENT ERYSIPELAS-LIKE MANIFESTATIONS OF THE LEGS: THEIR RELATIONSHIP TO FUNGOUS INFECTIONS OF THE FEET. M. B. SULZBERGER, A. ROSTENBERG and D. GOETZE, J. A. M. A. **108**:2189 (June 26) 1937.

In 4 cases (1 of which was included in the report by Traub and Tolmach), Sulzberger, Rostenberg and Goetze state that evidence indicated that the occurrence of erysipelas-like manifestations on the feet and the lower part of the legs was secondary to fungous infections of the feet. Immediate wheal reactions were obtained to trichophytin in all cases. Prausnitz-Küstner reagins to trichophytin were demonstrated in 2 cases. It is suggested that not in all cases are erysipelas-like lesions of mycotic origin but that in some instances they may be of streptococcic origin and in others of mixed pathogenesis.

FACTORS INVOLVED IN SATISFACTORY SHAVING. L. HOLLANDER and E. J. CASSELMAN, J. A. M. A. **109**:95 (July 10) 1937.

According to Hollander and Casselman, dull blades, incompletely softened hairs or improper shaving angles are the main causes of unsatisfactory shaving. Their investigations on the subject of shaving extended over four years, and their findings were based on the experiences of 31 men, all of whom were employees of Mellon Institute. To provide a satisfactory shave, Hollander and Casselman advise: 1. The face should be previously washed with hot water and soap. 2. The shaving soap should be thoroughly applied. If latherless cream is preferred it should be applied and mixed with the soap. 3. When shaving is begun the razor should be wet with hot water and the face kept well lathered; both the razor and the face should be kept wet during the entire operation. Hypersensitive persons may find the use of cold water in the lathering operation and of mentholated shaving soap helpful.

POSTARSPHENAMINE EXFOLIATIVE DERMATITIS: ETIOLOGY, COMPLICATIONS AND TREATMENT. E. EPSTEIN, J. A. M. A. **109**:117 (July 10) 1937.

Epstein reviews 59 cases of postarsphenamine exfoliative dermatitis observed at the Los Angeles County Hospital since 1928. The condition in most cases

might have been prevented. The incidence may be decreased by (1) preliminary therapy with heavy metals, except in cases of early involvement; (2) alternating rather than combined therapy, and (3) attention to first manifestations of cutaneous sensitivity. Reactions are most apt to occur during the first course of injections and are most common in white women between the ages of 20 and 40. The mortality is between 17 and 18 per cent. The reaction of the blood serum is reversed in approximately 60 per cent of the cases. The therapeutic measures advocated by Stokes were considered the most satisfactory procedures.

COMPOUND SOLUTION OF TANNIC ACID. B. FANTUS and H. A. DYNIEWICZ, J. A. M. A. **109**:200 (July 17) 1937.

Fantus and Dyniewicz describe a solution which has advantages over solution of tannic acid in water, in that it has good keeping qualities, produces a denser coagulation and has bacteriostatic action. The preparation consists of 0.42 Gm. of potassium chloride, 0.84 Gm. of calcium chloride, 1 Gm. of salicylic acid, 10.5 Gm. of sodium chloride, 100 Gm. of tannic acid, and distilled water to make 1,000 cc. The use of 10 per cent silver nitrate solution following the tannic acid solution, as first advocated by Bettman, is recommended.

XANTHOMA TUBEROSUM ASSOCIATED WITH TRAUMA AND MILD DIABETES MELLITUS. E. S. SUGG and D. D. STETSON, J. A. M. A. **109**:414 (Aug. 7) 1937.

Sugg and Stetson report the case of a 27 year old chef, in whom xanthomic lesions first developed over the buttocks, the elbows and the knees one and one-half years previously. These sites had been traumatized during his previous employment as a tile setter. He was obese and had consumed large quantities of fat in his diet for many years. Concomitant mild diabetes mellitus was detected.

SERODIAGNOSTIC TESTS FOR SYPHILIS AS PERFORMED BY THIRTY-NINE STATE LABORATORIES. T. PARRAN, H. H. HAZEN, J. F. MAHONEY, A. H. SANFORD, F. E. SENEAR, W. M. SIMPSON and R. A. VONDERLEHR, J. A. M. A. **109**: 425 (Aug. 7) 1937.

The health officers of the forty-eight states and the District of Columbia were invited to participate in a study for the evaluation of the efficiency of performance of the various serodiagnostic tests for syphilis as carried out in those laboratories. The invitation was accepted by the health officers of thirty-nine states. The results revealed considerable disparity. In many states the performance of serodiagnostic tests for syphilis was found to be maintained at a high level, but on the basis of the results of this survey, Parran and his associates declare that "some of the state laboratories are qualified neither to perform efficient laboratory service nor to inaugurate any system of state licensure or approval of local laboratories within their respective states." Recommendations by the Committee on Evaluation of Serodiagnostic Tests for Syphilis included: (1) adequate training of state and local laboratory technicians in the laboratories of the originators of the serodiagnostic tests which they use; (2) periodic inspection of state laboratories by the United States Public Health Service; (3) checking by state laboratories of the tests performed by municipal, hospital and private laboratories within the respective states; (4) availability of qualified local laboratories and their subsidization when necessary.

LEWIS, New York.

LYMPH NODES AS A SOURCE OF NEUTRALIZING PRINCIPLE FOR VACCINIA. PHILIP D. MCMASTER and JOHN G. KIDD, J. Exper. Med. **66**:73 (July) 1937.

From experimental studies the authors conclude: "An antiviral principle is elaborated within the regional lymph nodes draining skin into which vaccinia is injected. The immunity conferred by clinical Jennerian vaccination may be largely of lymph node origin."

LYNCH, St. Paul.

SYPHILIS AND UNEMPLOYMENT. JOSEPH EARLE MOORE, J. Indust. Hyg. & Toxicol. **19**:189 (May) 1937.

This timely article presents briefly the economic complications which arise as a result of the campaign to detect all cases of syphilis, especially in industrial workers, and the growing unwillingness of the employer to assume the responsibility of giving work to the syphilitic patient. The author stresses the fallacy of acceptance of the positive serologic reaction as a bar to employment without careful evaluation of the individual case as to infectiousness and susceptibility to aggravation of existing syphilitic lesions of the cardiovascular system, the neuraxis and the like. The article is of special value to the physician performing examinations and passing on candidates for industrial employment.

WIEDER, Milwaukee.

RELATION BETWEEN "SYSTEMIC" LUPUS ERYTHEMATOSUS AND A PECULIAR FORM OF THROMBOCYTOPENIC PURPURA. HARRY KEIL, Brit. J. Dermat. **49**:221 (May) 1937.

In this case the first clinical manifestation was thrombopenic purpura, which was apparently cured by splenectomy. Ten months later signs of systemic lupus erythematosus appeared. The patient eventually died of renal insufficiency, due to residual alterations in the kidneys (so-called hyaline thrombi). Thrombopenic purpura is usually explained on the basis of overactivity of the spleen or diminished function of the bone marrow. It is probable that there is in some cases, as apparently there is in this one, a third mechanism: withdrawal of platelets from the general circulation by their inclusion in capillary thrombi distributed throughout the body. Keil, from similar cases in the literature, cites evidence indicating a relation between systemic lupus erythematosus and this variety of thrombopenic purpura. He discusses in general the relation of the two diseases to vascular disease of the small vessels, the formation of so-called hyaline thrombi, the tendency to purpura in lupus erythematosus and the factor of therapy with gold preparations in the production of purpura. The pertinent literature is reviewed.

A CASE CLINICALLY RESEMBLING MORPHEA WITH A TUBERCULOUS BACKGROUND AND INDETERMINATE HISTOLOGY SUGGESTIVE OF NECROBIOSIS LIPOIDICA. D. B. S. BRUCE-JONES, Brit. J. Dermat. **49**:238 (May) 1937.

In 1935 Goldsmith described a "case of necrobiosis lipoidica in a nondiabetic" in which the clinical and the histologic picture were similar to those in Urbach's cases. He drew a comparison with an earlier case of his of scleroderma-like erythema induratum, and suggested that this condition and necrobiosis lipoidica are different phases of the same lesion. Bruce-Jones' case is reported in support of this view, and the author concludes that necrobiosis lipoidica is a clinical entity with several etiologic factors, only one of which is diabetes. Several of the members, however, in discussing the case, did not accept it as one of necrobiosis lipoidica.

THE MECHANISM OF HERPES ZOSTER AND ITS RELATION TO CHICKENPOX. EDWARD S. STERN, Brit. J. Dermat. **49**:263 (June) 1937.

Stern concludes from his study of 31 cases that the eruption of herpes zoster is caused by infection passing from the sensory ganglion down the course of the sensory nerve to the skin. Blocking an involved sensory nerve with alcohol did not prevent the extension of the eruption in a case of zoster. The eruption usually spreads in a distal direction along the distribution of the sensory nerve. It is usually more intense proximally. The sensory nerve was found to be the seat of hemorrhage and inflammation in a case of ophthalmic zoster. Of the 31 subjects, 4 caused varicella in persons with whom they came in contact.

RATTNER, Chicago.

PAGET'S DISEASE OF THE EYELID ASSOCIATED WITH CARCINOMA. A. HAGEDOORN, Brit. J. Ophth. **21**:234 (May) 1937.

Paget's disease (in some features resembling Bowen's disease) of the eyelid was observed histologically in the eyelids removed from a patient with trachoma and xerosis. One year later the appearance of a subcutaneous nodule necessitated exenteration of the orbit. Histologic examination showed this nodule to be carcinoma simplex.

Histologic examination of the lid showed changes strongly resembling certain varieties of basal cell carcinoma.

The article is illustrated. W. ZENTMAYER. [ARCH. OPHTH.]

ETIOLOGY OF PEMPHIGUS. A. LINDENBERG, Arch. de dermat. e syph. de São Paulo **1**:117 (June) 1937.

The author believes that the dermatosis first described forty years ago in São Paulo, Brazil, and called locally *fogo selvagem* (savage fire), is identical with pemphigus foliaceus of Cazenave. The condition is fairly common in this part of Brazil and has sharply defined geographic centers of distribution. Objectively it is indistinguishable from pemphigus foliaceus, but it is generally associated with more pruritus, burning and pain. Believing in the infectious origin of the disease, the author performed a considerable number of experiments with animals, injecting the blood serum of patients into the skin of rabbits. In this manner he was able in most instances to produce localized scaling and papillomatous lesions, which he felt had the clinical and microscopic characteristics of pemphigus foliaceus. In several cases he made successful second and third animal passages. He attempted in one case to cause infection by the subdural route, following Urbach's technic, but no encephalitic or paralytic disorder ensued. He was successful in a few instances in producing cutaneous lesions with serum from patients suffering from dermatitis herpetiformis and from pemphigus vulgaris. He concludes from this work that *fogo selvagem* is an infectious disease, identical with pemphigus foliaceus and endemic in Brazil, which is caused by a virus in the blood stream and is transmissible to laboratory animals, and that dermatitis herpetiformis and pemphigus vulgaris are caused by a blood-borne virus.

LEIFER, New York.

FURTHER CONTRIBUTIONS TO OCULAR CHANGES IN BESNIER-BOECK'S DISEASE. R. SEEFELDER, Arch. f. Augenh. **110**:415, 1937.

Seefelder describes a case of Besnier-Boeck's disease (Boeck's sarcoid) involving the conjunctival folds. The condition was characterized by the formation of follicles and small lumps in the conjunctiva. The microscopic changes in the conjunctival follicles corresponded fully to the changes noted in the skin and the other organs in this disease. A new observation that the author was able to demonstrate was layer-like concretions of calcium in the numerous giant cells present in the follicles. This picture has apparently been seen heretofore only in association with tuberculous changes. This fact merits attention in connection with the etiology of the disease. E. G. SMITH. [ARCH. OPHTH.]

CLOSE ROENTGEN RADIATION WITH THE CHAOUL TUBE IN CUTANEOUS CARCINOMA AND CHANCROID. B. SPIETHOFF and HEINZ BERGER, Dermat. Wchnschr. **102**: 757 (June 13) 1936.

The authors treated 17 patients with cutaneous cancer with a Chaoul tube. They gave 300 roentgens of radiation daily for a total of around 6,000 roentgens. The results were disappointing, only 4 patients showing clinical cure. Ten received no benefit.

SUPERFICIAL TRICHOPHYTOSIS OF THE SCALP IN ADULTS. L. N. MASCHKILLEISSON, Dermat. Wchnschr. **102**:765 (June 13) 1936.

Maschkilleisson found in the literature up to 1934 606 cases of superficial infection of the scalp by Trichophyton or Microsporon in adults. Between 1927 and 1935 53 such cases were observed by the author. In 43 instances the finger nails of the patient were infected; in 38 the palms, and in 30 other parts of the skin. All patients were women. Only 10 were aware of the condition in the scalp, and these had been infected in their youth. The nape was the site of predilection for the disease. Most of the patients had some dysfunction of the genital glands. Roentgen epilation was the treatment of choice.

PELLAGRA WITH UNUSUAL INVOLVEMENT OF THE SKIN, THE TONGUE AND THE EYES. S. M. MILENKOW, Dermat. Wchnschr. **102**:769 (June 13) 1936.

A man 44 years of age was operated on for carcinoma of the stomach. Severe pellagra developed with involvement of the terminal phalanges of the fingers, the palms, the tongue and the conjunctivae.

CASTELLI'S DISSERTATION ON THE BIOLOGIC TEST OF ARSPHENAMINE PREPARATIONS. W. GENNERICH, Dermat. Wchnschr. **102**:793 (June 20) 1936.

At the last International Congress of Dermatology and Syphilology Castelli criticized the German methods of biologically testing their arsphenamines. Gennerich goes into some detail in defending the various German preparations, particularly insisting on the low toxicity and high curative power, as proved in actual practice.

TAUSSIG, San Francisco.

ECZEMA AND PHAGOCYTOSIS OF THE LEUKOCYTES: I. ON THE INFLUENCE OF THE SERUM OF SUBJECTS WITH DERMATITIS ON THE PHAGOCYTOSIS OF LEUKOCYTES IN NORMAL RABBITS. T. OZAKI, Jap. J. Dermat. & Urol. **41**:117 (April) 1937.

The author studied the influence of the blood serum of rabbits with experimental dermatitis on the phagocytosis of the leukocytes of normal rabbits. He made the following observations: By the addition of serum from rabbits with experimental dermatitis to the citrated blood of normal rabbits, phagocytosis was markedly influenced. Serum from rabbits in the acute stage of dermatitis markedly diminished phagocytosis, and that from rabbits in the beginning of the subacute stage more markedly increased it than did that from normal rabbits. The author concluded that the changes in the blood of affected rabbits are responsible for the variations in phagocytic activity.

INDURATIO PENIS PLASTICA. S. KOMURO, Jap. J. Dermat. & Urol. **41**:118 (April) 1937.

The author reports the cases of 2 men, 1 aged 51 and the other aged 64, with plastic induration of the penis. In both cases there was a cartilaginous induration of the dorsum of the penis extending from the coronary sulcus to the base. Both patients complained that the penis bent upward during erection, making coitus difficult. The author compiled all the cases of true plastic induration of the penis in Japan and found 37 cases, including these 2.

The disease was found to be most frequent in the sixth decade; however, there were frequent cases in the third decade. The roentgenogram revealed "pelvic spots" of Albers-Schoenberg. Histologic examination showed sclerotic connective tissue in 2 cases; in 1 of the author's cases there was bone formation. The author believes that there is some causal connection between the "pelvic spots" and the plastic induration.

CONTRIBUTION TO THE KNOWLEDGE OF LYMPHOGRANULOMA VENEREUM: ON ESTHIOMENE. S. KOYAMA, Jap. J. Dermat. & Urol. **41**:119 (April) 1937.

The author adds to the 200 cases of lymphogranuloma venereum which he observed from 1928 to 1936 2 cases in prostitutes, 1 of whom had edema and ulceration in the genitoanal region for one and one-half years and the other suffered from rectal stricture for six years. The perianal granulation tissue of the second patient was injected into mice, and characteristic encephalitis transferable to sixteen generations, developed. Inoculation of the emulsion of the elephantiasic labium majus of the first patient into mice, however, gave a negative result. The perianal granulation tissue of the second patient, her vaginal secretion and an emulsion of the brains of experimentally inoculated mice yielded a good Frei antigen. These positive tests establish the presence of virus in the perianal tissue and in the vagina.

INFLUENCE OF ARSPHENAMINE AND SYPHILIS ON THE FUNCTION OF THE RETICULOENDOTHELIAL SYSTEM AND THE LIVER: II. INFLUENCE OF ARSPHENAMINE ON THE FUNCTION OF THE LIVER. K. IWASHITA, Jap. J. Dermat. & Urol. **41**:187 (June) 1937.

The author investigated the influence of arsphenamine on the function of the liver in a normal person and compared the results with the influence of the drug on the reticuloendothelial system and with the behavior of the liver during antisyphilitic treatment. He made the following observations: The function of the apparently healthy liver in man is damaged by one curative dose of arsphenamine. Damage is most conspicuous twelve hours after the injection, and the hepatic function returns to normal after thirty-six hours. The damage is generally slight, for the test for urobilin in the urine and the acid tolerance test of the bile give positive results in only a small percentage of cases. In persons in whom the hepatic function was previously disturbed, the damage is more considerable and of longer duration. In some cases hyperfunction of the liver was observed from forty-eight to seventy-two hours after the injection by the epinephrine test for hyperglycemia. The same results were obtained when arsphenamine was reinjected at an interval of from five to seven days. In experiments with animals analogous observations were made on the state of function of the reticuloendothelial system, although no hyperfunction was noted. The sugar content of the blood during fasting was not changed, either in human beings or in animals. The author believes that the functioning of the liver after administration of arsphenamine is not dependent on a change in the reticuloendothelial system.

EXPERIMENTAL INVESTIGATION OF AGRANULOCYTOSIS DUE TO ARSPHENAMINE. T. SAKURAI, Jap. J. Dermat. & Urol. **42**:1 (July) 1937.

The author succeeded in producing transitory agranulocytosis in one rabbit by the administration of arsphenamine. A lethal dose of arsphenamine produced a rapid destruction of neutrophilic leukocytes. When this medication was preceded by mechanical destruction of the bone marrow of both femurs, agranulocytosis and death resulted. Removal of 40 cc. of blood previous to injection of moderate amounts of arsphenamine produced a tendency to agranulocytosis and other changes in the blood.

Similar experiments with benzene instead of arsphenamine resulted in a disposition to leukopenic changes in the blood.

In order to decide if the arsenic or the benzene radical in arsphenamine is the cause of agranulocytosis, the author injected 1.5 cc. of a 1 per cent solution of sodium arsenate or of potassium arsenate into rabbits weighing 2 Kg. and succeeded in producing agranulocytosis associated with severe general symptoms.

Administration of this medication after removal of blood resulted in the Schultz type of agranulocytosis and in the so-called lymphomonocytic form, in spite of small doses of arsenic.

Agranulocytosis produced by arsphenamine, benzene and arsenic was favorably influenced by autohemotherapy.

INFLUENCE OF ARSPHENAMINE AND SYPHILIS ON THE FUNCTION OF THE RETICULOENDOTHELIAL SYSTEM AND THE LIVER: III. ON THE INFLUENCE OF SYPHILIS ON THE FUNCTION OF THE RETICULOENDOTHELIAL SYSTEM. K. IWASHITA, Jap. J. Dermat. & Urol. **42**:3 (July) 1937.

The investigations of the author revealed that there is hypofunction of the reticuloendothelial system parallel to the course of syphilitic infection of the testicle in the rabbit. The function was most affected at the height of the infection and returned gradually to normal during the involution of the syphiloma. In these investigations results were obtained by the method of antibody formation (with hemolysin, hemagglutinin and precipitin) and the method of foreign body storage (directly with carmine and indirectly with congo red). The author believes that that change is due to the direct fight of the reticuloendothelial system against Spirochaeta pallida and its toxins.

BLOOM, New York.

TWO CASES OF SYPHILITIC OSTEITIS. NILS WESTERMARK and SVEN HELLERSTRÖM, Acta radiol. **18**:422 (May) 1937.

The authors describe 2 cases in which syphilitic osteitis closely resembled osteogenic sarcoma both clinically and roentgenologically. The point is made that the diagnosis of osteogenic sarcoma should not be based on roentgenologic findings alone and that syphilis should be excluded by clinical examination and serologic and therapeutic tests before responsibility is assumed for the mutilating treatment that osteogenic sarcoma requires.

WIEDER, Milwaukee.

Society Transactions

NEW YORK DERMATOLOGICAL SOCIETY

EUGENE F. TRAUB, M.D., *President*

Dec. 21, 1937

FRANK C. COMBES, M.D., *Secretary*

Severe Ichthyosis. Presented by DR. HOWARD FOX.

M. R., a girl aged 20, a student, has suffered from an eruption since she was a few weeks old. No member of her family has ever been similarly affected. The eruption involves the entire cutaneous surface with the exception of the palms and the soles. The skin is dry, scaly and thickened and in places shows the tesselated appearance characteristic of ichthyosis. In some areas it presents the appearance of dermatitis exfoliativa. The patient is of medium size and weight, has always enjoyed excellent health and was valedictorian of her class in high school. The skin, especially that of the lower extremities, is slightly reddish. There are no dystrophic changes in the nails. The Wassermann reaction was negative, and other laboratory tests previously performed showed nothing abnormal except that the basal metabolic rate was +41 and +43 per cent on two determinations.

DISCUSSION

DR. GEORGE M. MACKEE: I agree with Dr. Fox's diagnosis. The condition is marked and almost universal ichthyosis. In spite of the erythema, I do not think it can be classified as ichthyosiform erythroderma, for reasons which I shall not take the time to enumerate now. I think years ago it would have been classified as ichthyosis rubra.

DR. HOWARD FOX: I agree that the reddish color is unusual.

A Case for Diagnosis (Perichondritis Nodularis Chronica? Epithelioma?). Presented by DR. FRANK C. COMBES.

W. T., a man aged 80, was first seen five years ago, because of a tender, scaly nodule just posterior to the upper border of the left helix. This was destroyed by endothermy and curetted on Oct. 16, 1933. The lesion recurred and on Feb. 6, 1934, was given 450 roentgens of radiation. This treatment had little effect, and a granulating ulcer about 10 mm. in diameter persisted. In November 1936 the lesion was treated with radium (10 milligram hours). It has not changed since. There is a rounded, elevated, erythematous border surrounding a small granulating ulcer. There are no telangiectases, and the border is not clinically characteristic of epithelioma. During the last few weeks there has been no tenderness in the lesion. A section removed over a year ago showed chronic inflammatory tissue.

DISCUSSION

DR. FRANK C. COMBES: It is my suggestion to this patient that the whole lesion be excised, but he prefers to have it treated with radium or roentgen rays.

DR. HOWARD FOX: The fact that this patient can lay both sides of his head on a pillow without discomfort speaks against the diagnosis of painful nodule of the ear. Furthermore, such a lesion is usually on the highest part of the helix. I think the lesion is an epithelioma.

DR. A. BENSON CANNON: I agree with what Dr. Fox has said.

DR. J. FRANK FRASER: In my opinion the lesion presents all the clinical features of epithelioma.

DR. R. H. RULISON: I think it is probably malignant and should be excised.

DR. GEORGE M. MACKEE: It probably is an epithelioma, but there is the possibility of radiodermatitis. The reason for considering epithelioma now is the slightly infiltrated edge. I think most of the lesion may be radiodermatitis, which is perhaps the best reason for treating it in some other way than with radiation.

DR. EDWARD R. MALONEY: It seems to me that the lesion is probably an epithelioma. There may be a good deal of radiodermatitis present, and the best method of treatment, in my opinion, is excision. The man is pretty comfortable now. The lesion is not particularly active, and he is over 80 years old. I do not think, therefore, that there is any hurry about doing anything.

DR. HOWARD FOX: I do not see how one can make a diagnosis of radiodermatitis in this case, as there is no sign of telangiectasia.

DR. GEORGE M. MACKEE: Chronic ulcerative radiodermatitis may be unassociated with telangiectasia, especially when the radiation has been given to a sharply circumscribed area and the surrounding area protected by screening. I base my diagnosis on the facts that there was considerable pain for several months and that there is now an indolent ulcer.

DR. J. FRANK FRASER: I should like to ask whether irradiation is contraindicated in the treatment of epithelioma situated over cartilage.

DR. GEORGE M. MACKEE: If the epithelioma does not involve cartilage, is entirely in the skin and is radiosensitive, it is apt to respond well to irradiation. If the cartilage is involved or injured by irradiation, that is a disagreeable complication. I usually prefer some surgical method for the treatment of lesions in this location.

DR. FRANK C. COMBES: I agree with what the members have said, except that I cannot see the radiodermatitis. It is my opinion that the cartilage may be affected by the irradiation. However, the patient had only a small dose of roentgen rays and, two years later, of radium. The tenderness preceded the appearance of the lesion and has only disappeared in the last two or three weeks. I agree with Dr. Maloney that there is no hurry.

Bowen's Disease in Association with Radium-Induced Atrophy of the Skin. Presented by DR J. GARDNER HOPKINS.

G. C., a man aged 35, has worked for the last fifteen years as a radium and roentgen ray technician and during the earlier part of this period in a factory where precautions for the protection of workers were apparently inadequate. During the second part of the period he worked with roentgen rays and under good conditions; for the past four or five years he has worked at tubing and standardizing radium emanation at an institute where a good many precautions are used, although the tips of his fingers are apparently not protected in his work.

His blood count has been repeatedly checked and is normal. Over the terminal phalanges of the right second and third fingers there is slight but definite atrophy; there are suspicious changes in the same location on the other fingers, and on the ulnar border of the right little finger is an area of hyperkeratosis and desquamation 11 mm. in diameter. There was no detectable infiltration in this area, and the lesion appears to be simple keratosis.

Histologic examination showed a typical picture of Bowen's disease.

There are apparently few reports of this particular type of malignant disease due to short wave radiation, but Jadassohn reported 1 case of Bowen's disease in skin exposed to roentgen rays.

DISCUSSION

DR. HOWARD FOX: I think it is high time that this man should quit his job, as he has been exposed to radium for a long time and shows signs of radiodermatitis of the fingers.

DR. GEORGE M. MACKEE: The important and interesting thing, which I think Dr. Hopkins had in mind as the main reason for presenting the case, is that this condition developed in association with radiodermatitis or at least in a skin which had been injured by radium. Whether this particular lesion has anything really to do with the atrophy and the sequelae of irradiation is, of course, difficult to ascertain. The patient might have had this lesion even if he had not had any contact with radium. The point is: Does Bowen's disease ever develop in skin which has been exposed to roentgen rays or radium? I think it does. There are a number of cases on record in which true Bowen's disease developed in skin affected by roentgen rays, and there are a large number of lesions that are "bowenoid"—that is, which show "bowenoid" degeneration—but may not be true Bowen's epithelioma. This lesion is true Bowen's epithelioma developing in skin that shows slight evidence of sequelae of radium. That is about all one can say. I favor excision because Bowen's disease and "bowenoid" degeneration are not very radiosensitive.

DR. J. FRANK FRASER: The point I wish to stress is that a diagnosis of Bowen's dermatosis based on the gross appearance of the lesions could not have been made at any stage in the evolution of this picture. The microscopic picture, on the other hand, was typical of that condition and established the diagnosis. Bowen's disease is a histologic but not a clinical entity.

DR. EUGENE F. TRAUB: In closing, could Dr. Hopkins tell the members whether the affected part of the hand is not really its least exposed portion in his occupation?

DR. J. GARDNER HOPKINS: Does Dr. MacKee feel that there is radiodermatitis?

DR. GEORGE M. MACKEE: Yes. There are some atrophy and slight telangiectasia.

A Case for Diagnosis (Acne with Hematomas). Presented by DR. A. BENSON CANNON.

M. C., a woman aged 23, a school teacher, consulted me today because of subcutaneous tumors which ulcerated and left scars. Her father and her mother are dead, and she boards with a friend. She has one brother, who is alive and well. She was in an automobile accident twenty-one months ago. Fourteen months ago she began to have subcutaneous soft swellings, varying in size from that of a pea to that of an English walnut. Some of these would rupture, while others would have to be opened by a physician, and they would discharge dark blood and blood-colored serum. These would heal, leaving red scars. There has been no pain or discomfort. There is no history of injury, and the patient states that she has taken no drugs. She eats plain salt. Her general health is excellent. She has visited several physicians, and no diagnosis has been made. Cultures of material from these tumors have all been sterile. The blood count was normal, and the Wassermann reaction negative. She has had eight roentgen treatments to the back and the face and many treatments with ultraviolet rays, but these have produced no benefit.

Examination shows a well developed, apparently healthy young woman, whose color is good and who is not acutely ill. On the face and the back are numerous comedos and a few bright red papular pustules, ranging in size from that of a pinhead to that of a pea; on the back are numerous scars, which vary in size from that of a pea to that of a dime and are both red and depressed. On the right side of the back is a blue subcutaneous swelling about 2½ by 1 inches (6.3 by 2.5 cm.) with a sharply defined round puncture at the upper part which looks as though freshly made with about a 19 gage needle. There is a similar tumor about the size of a hazelnut on the right side of the forehead, with a recent puncture. These lesions are said to have been present only about twenty-four hours. On the right side of the lower part of the back is a subcutaneous hard, raised tumor about 1 by 3 inches (2.5 by 7.5 cm.) with a central linear red scar about ½ inch (1.3 cm.) long. The skin is a bit oily. The scalp is oily and a little scaly.

DISCUSSION

DR. HOWARD FOX: I think the entire eruption is severe acne vulgaris, and I cannot see any evidence of a factitious element.

DR. FRANK C. COMBES: I agree with the diagnosis. However, I think the entire condition may be considered as acne conglobata, in which there may be hemorrhagic lesions.

DR. EDWARD R. MALONEY: I agree with the diagnosis of pustular acne.

DR. PAUL E. BECHET: In my opinion the eruption is severe indurated acne of the conglobate type, with multiple deep sebaceous abscesses. This type of acne always runs true to form. It occurs in young men past puberty. The patients are usually cachetic, anemic, emaciated and pallid. The lesions on the face are deeply indurated, but on the back they consist of follicular and perifollicular inflammatory infiltrations, which are often confluent. Many of them are boggy, and when they are incised a thin bloody seropus can be expressed. The resulting scarring varies from dark red to brown and is at times keloidal. I agree with Dr. Fox that there is not the slightest suggestion of a factitious element.

DR. GEORGE M. MACKEE: I think this condition is what is loosely called cystic acne. There may be some cysts and some abscesses. They are all part of the picture of severe acne, although sometimes lesions like this occur in cases of mild acne. They are difficult to treat satisfactorily, because if they are allowed to undergo spontaneous involution, as they eventually will, there may be either an elevated or a depressed scar. Roentgen treatment is often satisfactory, but considerable time is required. Free incision and drainage is the quickest procedure but is apt to leave an unsightly scar. This patient has received eight roentgen treatments. That is not enough. In a case like this one, as many as sixteen weekly fractional treatments might be required.

DR. R. H. RULISON: This patient tells me that she habitually uses a stiff bath brush and has done so for a long time. I think if she bathed gently there would be progress in the individual lesions.

DR. A. BENSON CANNON: Certainly there can be no question as to the patient's having acne, and a few of the lesions are cystic. I was puzzled as to the explanation for the multiple soft, fluctuating, nontender bluish swellings that appeared overnight and when opened by a physician or after rupturing spontaneously discharged blood and a clear bloody serum. I am at a loss to explain the little round punctures in the centers of these blood tumors, which look as though caused by puncture with a needle. The members are all familiar with the hemorrhagic spots that appear in the skin of anemic patients as the result of slight trauma, but this girl has no secondary anemia, and she states that she has not taken drugs. I question whether she could have produced such large hematomas by scrubbing with a brush.

Spiradenoma. Presented by DR. J. FRANK FRASER.

H. R., a man aged 54, was presented before the Manhattan Dermatologic Society in December 1937 (ARCH. DERMAT. & SYPH. **37**:912 [May] 1938).

DISCUSSION

DR. GEORGE M. MACKEE: Clinically the condition looks like syringoma. There are scattered semitranslucent, smooth nodules. Under the microscope tubules are apparent, and it is a question whether the cells are derived from the sudoral apparatus. I have seen basal cell epithelioma, for instance, produce a tubular formation that looked like sweat ducts. Of course, that condition is apt to show features that resemble hair follicles, but occasionally it does form tubules. When I saw the slide last week, I worried about the condition and thought it might possibly be basal cell epithelioma. The derivation is unknown. There is no hair follicle formation. The lesion is what I should have called syringoma—that is, a lesion in which the cells are derived from the sweat ducts and are forming tubules, or sweat ducts. I now agree with Dr. Fraser's diagnosis.

DR. J. FRANK FRASER: I should not consider for a moment the diagnosis of basal cell epithelioma. There is not the remotest histologic sign of differentiation into hair follicles. On the other hand, there are positive indications of a successful attempt at differentiation into sweat glands. Syringoma is closely related to benign cystic epithelioma, and the microscopic picture is highly characteristic. When the ducts are dilated to form cysts the condition is spoken of as syringocystadenoma, but when the tumor is an adenoma arising from the alveoli, as in this case, it is known as a spiradenoma (from *speira,* a coil). I have studied sections from two of these growths, one from the forehead and the other from the scalp, prepared with hematoxylin and eosin and with Van Gieson's connective tissue stain, and they all showed the typical picture of spiradenoma (adenomatosis of the sweat glands).

Disseminate Multiple Epitheliomatosis of the Skin, with Possible Prickle Cell Changes in One of the Lesions. Presented by DR. PAUL E. BECHET.

J. B., a man aged 58, has had an eruption on the trunk for fifteen years. He has a dozen or more sharply defined, rounded red lesions on the trunk, which vary from 2 to 5 mm. in diameter. Their borders are sharply outlined and somewhat raised, with here and there a definite pearly border. One of the largest lesions, near the sacrum, presents in its center a raised, cauliflower-like fungating mass which is suggestive of a prickle cell change.

DISCUSSION

DR. FRANK C. COMBES: Was any radiotherapy given to the lesion over the sacral region?

DR. J. GARDNER HOPKINS: Is there any history of ingestion of arsenic?

DR. EUGENE F. TRAUB: In the past four or five years I have seen a number of patients with somewhat similar lesions which had become indurated, and large tumor masses developed in the manner in which this large lesion has developed over the sacrum of this patient. In each case I suspected that the lesion had either changed to prickle cell epithelioma or was a slowly growing prickle cell epithelioma from the start. However, invariably it turned out to be basal cell epithelioma, so that apparently neither the large size of the growth nor the comparatively rapid enlargement necessarily denotes a prickle cell lesion.

DR. PAUL E. BECHET: The case is presented because I suspected a prickle cell change in the largest lesion. I observed a similar case in which a prickle cell epithelioma developed in the center of a basal cell lesion. This was proved by histologic examination of both lesions. There is no history here of ingestion of arsenic, and the patient has had no radiotherapy.

Lichen Scrofulosorum and Sarcoid. Presented by DR. A. BENSON CANNON.

E. T., a white married woman aged 59, has one child living and well and has had one miscarriage. Five years ago, shortly after a tuberculous right kidney and a tuberculous fistula in ano were removed, pinhead-sized grayish white rough, shotty papules developed in groups on the front of each leg. At the same time the mucous membrane of the mouth and of the vagina became red and dry. A diagnosis of lichen spinulosus complicating lichen scrofulosorum was made. The patient was given injections of liver extract, a vitamin B preparation and viosterol for about a year at the Rockefeller Institute; results were indifferent. In the last year the eruption has spread to become generalized, being most marked on the extensor surfaces of the extremities, in the suprapubic region, beneath the breasts and on the chin. Minute reddish white papules have coalesced, forming red scaling plaques in places. Those in the suprapubic region have become crusted, and hard rupialike formations led some physicians to make the diagnosis of syphilis. Repeated Wassermann and precipitation tests have been negative, and examination of the spinal fluid showed no abnormality.

On the body and the extremities are groups of faintly pinkish gray, shotty papules, which vary in size from that of a pinpoint to that of a pinhead; on the extensor surfaces of the extremities are several red scaly plaques, slightly raised, ranging in size from that of a silver dollar to that of a palm. A circinate raised red firm lesion with a clear center occupies the entire chin. The mucous membrane of the tongue, of the area beneath the tongue and of the entire vaginal wall is red, glazed, shiny and in places atrophic.

Examination of a biopsy specimen from an infiltrated plaque showed the picture of sarcoid, while the follicular lesions were those of lichen scrofulosorum.

DISCUSSION

DR. J. GARDNER HOPKINS: This case furnishes an excellent example of the many forms of lesions that can be observed in cases of tuberculosis of the skin. I think the lesions on the shoulder are small groups of acuminate papules which would correspond with lichen scrofulosorum. The patient says her mouth is well and has given her no trouble since she received the injections of liver. The oral lesion was probably part of a Plummer-Vinson syndrome and without relationship to her tuberculosis.

DR. HOWARD FOX: I think it probable that the condition is some form of tuberculid. It does not conform to my idea of lichen scrofulosorum, which usually occurs in young persons, is associated with active tuberculosis and is present chiefly on the trunk as patches of tiny discrete papules. Only one small patch on the shoulder suggested this disease, which, by the way, for some unknown reason, appears to be rare in the United States. I have seen so many bizarre forms of sarcoid that I should not be surprised to find that condition in the lesions on the legs.

DR. EDWARD R. MALONEY: The only lesion I can see that at all resembles lichen scrofulosorum is a small patch on one shoulder. That certainly looks like lichen scrofulosorum. The eruption on the legs does not look like this disease clinically. I do not know what type of tuberculous eruption it could be called. I have never seen a tuberculous eruption or a tuberculid just like it. As to sarcoid, if the histologic picture of the tissue taken from one of the three lesions on the inner surface of one thigh shows a sarcoid structure, then the diagnosis is sarcoid.

DR. PAUL E. BECHET: I have observed few cases of typical lichen scrofulosorum. As Dr. Fox said, the disease is rare. In the few cases that I have observed the picture always ran true to form and did not in the least resemble the lesions presented by Dr. Cannon's patient. This condition may be some form of tuberculid, but it is not characteristic of the sarcoid group.

DR. J. FRANK FRASER: I should not attempt to make a diagnosis without seeing the slides. I did not see the lesions which suggested sarcoid.

A Case for Diagnosis (Psoriasis? Pityriasis Rubra Pilaris?). Presented by DR. PAUL E. BECHET.

L. A., a man aged 41, has suffered from a persistent eruption for five years. It consists of large acutely red dry plaquelike areas which cover most of the trunk and the extremities; most of the patches are not scaly and are elevated, with extremely sharply defined borders. Between these patches are areas of normal skin. On the legs there is a tendency toward eczematization. The patient states that the results of treatment have been negligible. There are no scratch marks, despite the fact that the patient states that there is pruritus. Keratosis of the palms and follicular plugs on the backs of the fingers are absent.

DISCUSSION

DR. FRANK C. COMBES: I agree with the diagnosis of psoriasis and lichenification. I cannot see anything remotely suggesting pityriasis rubra pilaris.

DR. HOWARD FOX: I agree entirely with Dr. Combes that this condition is not pityriasis rubra pilaris, because there are no cleancut acuminate papules at the borders of the diffuse patches, no plugs on the backs of the fingers and no diffuse keratoses of the palms. I think it is probably psoriasis.

DR. J. FRANK FRASER: I share Dr. Hopkins' view that it is impossible to make a histologic diagnosis of pityriasis rubra pilaris without a correlated clinical picture. The section did not show the keratotic plugs of pityriasis rubra pilaris, but it did show some of the histologic features of psoriasis. I suggest that another biopsy be made.

DR. EUGENE F. TRAUB: This patient presents many slightly shiny-topped individual papules, which appear to surround fine lanugo hairs. The upper part of the back is studded with them. The lesions certainly do not conform to my conception of ordinary psoriasis but seem characteristic in most features of pityriasis rubra pilaris. Only some of the follicular plugs on the dorsa of the fingers are lacking, and the usual palmar changes are absent. The condition does not develop in exactly the same manner in all cases, however, and it is probable that in the course of time even these characteristic features will develop. The eruption on the scalp is not the patchy type usual for psoriasis but is more diffuse and conforms to the changes of pityriasis rubra pilaris. To sum up: The condition seems to me to be typical pityriasis rubra pilaris, except that the changes usually seen on the hands have not developed.

DR. PAUL E. BECHET: My first thought was that it was atypical psoriasis, but, for the reasons advanced by Dr. Traub, I also considered the possibility of pityriasis rubra pilaris. The fact that there are no palmar keratoses or follicular plugs on the backs of the fingers does not exclude that diagnosis, as these occasionally occur later in the course of the disease. However, the condition has been present for five years, and it would seem to me that in that time the hands should be involved if pityriasis rubra pilaris were present. If the condition is psoriasis, it is most atypical. The discrepancy between the clinical appearance of the lesions and the histologic picture is more apparent than real. I think that in a case of this type two or three biopsies should be made and many serial sections examined. The examination of a few sections from a small biopsy specimen is not always sufficient.

Gumma (Right Leg), with Secondary Infection. Presented by DR. A. BENSON CANNON.

S. L., a Negress aged 38, a houseworker, was first seen at the Vanderbilt Clinic in May 1933, because of a recurrent secondary syphilitic eruption of six weeks' duration, involving chiefly the extremities—especially the palms and soles—and the area around the nose. She had had a similar eruption six months previously, which had disappeared after a few injections of arsphenamine. A Wassermann and a precipitation test were strongly positive. The spinal fluid was normal. All the surface lesions disappeared after six injections of old arsphenamine and six of mercury. The patient discontinued treatment for two months. Then she returned with a secondary syphilitic eruption of the same character and involving the same locations as the previous one.

The patient was not seen again until August 1937. During these four years she had been under treatment by her private physician, receiving intramuscular and intravenous injections at intervals. Her plan of treatment had consisted of three weekly injections of mercury and three of arsphenamine, followed by a month's rest. During this regimen a gumma developed on the lower anterior surface of her right leg, and it was for this lesion that she again returned to the clinic. The ulcer was the size of a man's palm, irregular, circinate and sharply demarcated, with beveled edges, a sloughing granular base which gave it a punched-out appearance and areas of yellowish superficial slough which gave off a sero-purulent discharge. The entire leg was swollen. Streptococcus haemolyticus was

cultured from the lesion. Histologic examination showed an infectious granuloma suggesting gumma. The Wassermann, the Kahn and the Kline tests of the blood were strongly positive.

The ulceration failed to show improvement after four injections of old arsphenamine and four of a bismuth preparation at weekly intervals and the administration of 90 grains (5.82 Gm.) of potassium iodide daily; it has, however, responded to treatment with daily dressings of zinc peroxide by Dr. Frank Meleney, of the surgical department.

DISCUSSION

DR. HOWARD FOX: This patient's condition looks much like that of a patient I showed at the last meeting, with a tentative diagnosis of pyoderma gangraenosum (ARCH. DERMAT. & SYPH. **37**:1075 [June] 1938). My patient was also a Negress suffering from syphilis, and the ulcer was in the same location. It failed to disappear under intensive antisyphilitic treatment but did disappear at the end of two months' rest in bed. It recurred later in scar tissue, which showed conclusively, I think, that it was not syphilitic.

DR. EUGENE F. TRAUB: The lower third of the leg is a rare site for a syphilitic lesion. The location does not necessarily exclude syphilis, but it is the last place on either leg one would examine for a syphilitic lesion.

DR. EDWARD R. MALONEY: I understood that Dr. Meleney said this lesion was syphilitic with a mixed infection on top of it.

DR. A. BENSON CANNON: Gummatous ulcerations frequently become secondarily infected; on the extremities, especially the legs, they prove unusually resistant to antisyphilitic therapy. Besides the injections of arsphenamine and heavy metal and the iodide, my associates and I consider cleanliness of the ulcer with supportive bandages of the extremity important, if not absolutely necessary, to the healing of the lesion. Along with the nonspecific remedies that Dr. Meleney has used (daily dressings with zinc peroxide), the patient has had arsphenamine, a bismuth preparation and an iodide. The ulcer has healed about three quarters since treatment was begun. There has been no pain.

Mixed Infection, Treated with Zinc Peroxide; Presented to Show the Results of Treatment. Presented by DR. EUGENE F. TRAUB.

F. J., a man aged 48, with a mixed infection of the axillas and the groin, was presented at the October meeting of the New York Dermatological Society (ARCH. DERMAT. & SYPH. **37**:898 [May] 1938).

Since last presented this patient has been operated on by Dr. Frank Meleney, who cleaned out both axillas and the groin and then treated these areas with zinc peroxide, with most gratifying results. The patient is again presented, to show the splendid result achieved in the treatment of a condition that had been looked on as more or less hopeless and had existed for about twenty years.

DISCUSSION

DR. FRANK MELENEY (by invitation): The case involves one of those undermining, burrowing infections in which the microaerophilic hemolytic streptococcus is believed to be the causative organism. It is 1 of 3 almost identical cases which I have observed recently. The first case was one of Dr. Hopkins' in the medical department of the Presbyterian Hospital. There were an infection of two years' duration in the left axilla and one of one year's duration in the perineum and the groin, involving the scrotum and the tissues around the anus. About three months ago a second case was referred to me, in which there had been a chronic infection of the groin and scrotum of this same character for many years.

The history of the patient presented tonight is, briefly, that in 1918, while he was in the army in France, he had a hernia and went to one of the army hospitals for operation. The wound became infected near the lower end, and the infection spread down toward the groin. He left the hospital before the wound was healed

and went back to the front. The infection persisted but did not seem to be serious. He did not return to the hospital but came back to this country shortly afterward. He was discharged from the army in 1919. Soon after that this infection became active again as an elongated mass of tender, inflamed tissue, and sinuses formed in several places along the involved area. From that time on the infection gradually spread to involve the scrotum and passed beneath the perineum over to the other side. Within a year it had been transplanted to both axillas. There, it had the same low grade burrowing character, with scarring and sinus formation and interfered with the adduction of the arms. It was treated in several army and marine hospitals. In one place an assiduous surgeon said that he lay awake nights trying to think up ways of curing this infection. He not only used all kinds of antiseptics but repeatedly excised portions of the tissue. Still it spread. The patient went to the Veterans' Administration Facility repeatedly and was seen by various surgeons and dermatologists. The diagnosis of tuberculosis was made but never confirmed by culture, by inoculation of guinea pigs or by biopsy. The man tried the clinics of the Cornell Medical Center, the Bellevue Hospital, the Hospital for Joint Diseases and the Harlem Hospital and finally came to the Skin and Cancer Unit of the New York Post-Graduate Medical School and Hospital, where he came into the friendly hands of Dr. Traub, who sent him to me. When he was admitted to the Presbyterian Hospital, I determined to excise the tissue and treat the affected areas with zinc peroxide, because of my success with this method in the earlier cases.

An extensive excision was done. I have here a series of photographs which will give an idea ot what the condition looked like when the patient came in. In the right groin, over the saphenous opening, as well as in the tissues overlying the saphenous vein, were groups of involved lymph glands. These glands were excised and the saphenous vein tied off. It was in that region that I was afraid that the infection might spread deeply. The infection had involved the scrotum but had not penetrated the deep fascia and did not involve the testicles. It was possible to remove all the grossly infected tissue on both sides. In the axillas I excised the lesions widely. The glands were involved high in the axillas, up under the muscles; these were excised. This left a cavity of soft fatty tissue, which was treated daily with zinc peroxide. The infection promptly cleared. Granulations began to appear on the fourth day. On the thirteenth day it was possible to transplant skin grafts from the upper part of the abdomen to both axillas. Four days later it was possible to take grafts from the thigh to fill in the groins. The patient has a hernia on the left side, which will have to be repaired later.

The other cases I spoke of are represented by the photographs. Wax models show the groin and the right axilla of the present patient at the time of admission and the right axilla after healing had occurred. Another model shows a patient with the same type of infection, who was shown to this society and was referred to me by Dr. Eller. He had been treated for one and a half years. He was an automobile mechanic in whom a wound on the arm had resulted in the spread of an infection to an axillary gland, which was opened and drained. The wound did not heal but finally took on a typical undermining character, spreading under the breast and the pectoral muscles. He was treated for syphilis for a number of months. When he came to the Presbyterian Hospital, the causative organism was found. He was treated with zinc peroxide but a little too conservatively. He responded slowly. He had to have a number of excisions of sinus tracts and undermined skin before the condition finally healed. I was not radical enough at first, because I was anxious to save the axillary skin and the full function of the arm. In the case just presented, however, I decided to be radical at the start, because it was impossible to get the proper contact with the zinc peroxide otherwise.

The causative organism is in the intermediate group between aerobic and anaerobic bacteria. It is a hemolytic streptococcus which prefers anaerobic growth. It may have been an ordinary hemolytic streptococcus which in the intestine or somewhere else acquired anaerobic properties. The infection apparently begins in one of three ways: 1. The organism may enter a postoperative wound in cases in

which operative procedures on the intestine, the vagina or the groin have been employed. 2. The organism may get in at some distant point and travel to a lymph gland. There it lodges for a long time; the gland enlarges slowly, and the surgeon does not know when to operate on it. He finally does and finds pus. The condition does not clear in the usual way, and the wound gradually takes on the property of undermining and burrowing under the surrounding tissues. 3. There may be secondary contamination of an accidental wound or a wound of long standing. I believe that this infection belongs in the first group, of postoperative infections.

It is because the organism is in the intermediate group that it is so often missed on ordinary cultures. When cultures are made of material from wounds like this, a staphylococcus or some other organism which is not causative is found. If anaerobic plates are made when the material for culture is first taken, the organism will be found to grow on the anaerobic plates and not at all or poorly on the aerobic plates. If from the anaerobic plates ten or fifteen colonies are taken and planted on anaerobic and aerobic plates, some colonies will grow only on the anaerobic plates. However, after several transplantations, it will grow on the aerobic plates, and it is difficult to maintain this organism in the anaerobic state. When treated with zinc peroxide, the bacterium promptly becomes entirely aerobic. There is a gradual change or mutation of the organism from the anaerobic hemolytic to the aerobic hemolytic state, and then it loses its hemolytic property and becomes green. When it is in that stage, the wound loses its undermining and burrowing character and heals progressively. This change of the streptococcus from the anaerobic hemolytic to the aerobic green stage can be reproduced in the laboratory by brief contact of the organism with zinc peroxide.

The use of zinc peroxide was first suggested to me by Dr. Hans Clarke, professor of biochemistry at the Columbia University College of Physicians and Surgeons. I had been asked to observe a case of this type in Newark, N. J. One year before, the patient had been operated on for recurrent appendicitis, and the wound had become infected. When it was opened there was a foul odor, which was thought to be due to the colon bacillus, the only organism which had been found on culture. After a few weeks the wound became burrowing and undermining and spread extensively over the abdominal wall. It had resisted all attempts at healing for a year when I saw it. The case was the fourth of that kind which I had observed, and I recognized the condition as belonging in the group under discussion. In 1 case death had been caused by hemorrhage; in 1 amyloid degeneration had developed and death had followed; in the third the involvement was less severe, and the patient had recovered under prolonged ultraviolet irradiation, and I thought this fourth case would terminate in death. I told Dr. Clarke I did not know what to do for the condition but was sure that it was caused by this microaerophilic organism. I asked Dr. Clarke if he knew of anything which would give off oxygen slowly, and he suggested, among other things, zinc peroxide. It was found that the preparation destroyed the organism in the test tube, and when it was tried on the patient, the course of the infection changed completely. There had been a temperature of 103 F. every day, associated with pains so agonizing as to cause an attempt at suicide at one time; yet within three days after this treatment was started the temperature was down and the ulcer was showing signs of healing. Gradually the wound began to contract and was soon ready for skin grafting. That was the first case in which treatment with zinc peroxide was used. I have observed its use in 25 or 30 cases now. Most of the patients have been seen in other hospitals. In only 1 case did treatment originate at the Presbyterian Hospital, but 13 patients have been transferred there. The infection is rare, I suppose, because the organism is relatively infrequent and because it probably has to be in just the proper state to get a foothold in a wound.

I have had trouble obtaining standard preparations of zinc peroxide. The first material I used was good. Later specimens were not good. Other physicians

were using it and not getting any results and it was discovered that there are an active and an inactive preparation, one producing oxygen and the other not. It was then possible to demonstrate that there are other important physical properties. One is physical softness. Some preparations harden like cement and not only traumatize the wound but fail to give off oxygen. If 5 Gm. of an effective preparation of zinc peroxide is added to 50 cc. of water, it promptly settles to the bottom and the fluid above clears. There should be not a dense but a flocculent, curdlike precipitate, which after an hour begins to give off bubbles of oxygen which can be drawn off and measured. I have set a minimum standard for the liberation of oxygen in the first hour, in twenty-four hours and in the last four hours of the twenty-four. The ideal preparation would be one that would produce a high yield of oxygen continuously for twenty-four hours or longer. I have not found that yet, but I hope to get it. The ineffective preparation leaves a milky supernatant fluid, and no bubbles of oxygen form. In twenty-four hours there is no evidence of activity. There is the same amount of zinc peroxide in the two specimens. It took a long time to persuade the manufacturers that there was a difference between the two preparations. When we brought their representatives down to the hospital, demonstrated these tests and showed them the patients treated we convinced them that the preparations were not uniform.

To summarize: 1. The zinc peroxide must be effective. It is easy to test it. It comes as a powder and must be sterilized. Dry heat at 140 C. is used for four hours. That sterilization mobilizes the oxygen in some way.

2. The zinc peroxide must be applied everywhere to the surface of the infected tissues. The powder is mixed with an equal quantity of sterile distilled water to make a suspension of about the consistency of 40 per cent cream. Direct contact is important, because the substance probably does not penetrate deeply. Any parts of the wound in which there is slough, which will prevent contact, will not heal, while the rest will. Any deep sinuses must be opened.

3. Evaporation must be prevented. Moisture must be present for activity. After the wound is flooded with the creamy suspension, it is covered with fine mesh gauze soaked in the suspension, and the dressing is sealed with petrolatum gauze. In the axillas this is difficult, because every movement causes wrinkling of the gauze and permits some evaporation. Recently I have been doing something I did not do before. After applying the zinc peroxide on the fine-meshed gauze, I have been covering the gauze with compresses wet with water and sealing the application with petrolatum gauze. This application seems to be less bulky and remains moist longer.

As soon as the infection is controlled and granulations have covered the wound, skin grafting is done. The patient's environment is pretty well contaminated with the organism. In fact, every time he passes a stool he may be contaminating the bed or his hands. Therefore, the area from which the graft is removed is dressed afterward with zinc peroxide. The receiving area is covered with a single layer of coarse-meshed gauze sealed at the cutaneous margin with collodion. Saline compresses are applied right over the gauze and kept wet with petrolatum-treated gauze for twenty-four hours, after which they are removed and zinc peroxide is put on. After another twenty-four hours the grafts are pink, being pink one or two days earlier than in cases of ordinary skin graft. I do not know what the treatment does, but there seems to be earlier vascularization of the grafts. At the end of a week epithelization between the grafts can be hastened by using 0.5 per cent oxyquinoline in 5 per cent ointment of scarlet red.

Dr. R. H. Rulison: How often is the zinc peroxide applied? Is any effort made to clean up the wound previous to application?

Dr. Frank Meleney (by invitation): The zinc peroxide is applied every day. The wound is cleaned as well as possible with saline from an irrigating can. The ordinary asepto syringe with a rubber bulb is particularly well adapted for mixing and applying the zinc peroxide.

DR. HOWARD FOX: In the past few years I have observed a number of cases in which extensive ulcerations were extremely resistant to treatment and in which syphilis and tuberculosis could be definitely excluded. In a few cases there was a tendency to undermining of the edges, but this was not usual. I have called the condition in these cases pyoderma gangraenosum although bacteriologic studies were not made in most of them. I should like to ask Dr. Meleney if his method of treatment might be helpful in such cases. In the case presented tonight by Dr. Meleney and in the other 2 which I observed at the Veterans' Administration Facility I made a diagnosis of scrofuloderma, partly because positive results were obtained from inoculations of guinea pigs in 1 case. I freely admit that I was entirely wrong in my diagnosis in the case presented today.

DR. FRANK MELENEY (by invitation): In the case of pyoderma gangraenosum in a syphilitic patient, presented by Dr. Cannon, zinc peroxide was indicated, but the condition was not in this group. The characteristic undermining or burrowing qualities which I have been talking about were not present. There was, however a heavy infection by aerobic hemolytic streptococcus in that ulcer. The ordinary aerobic hemolytic streptococcus is susceptible to zinc peroxide but not to the same degree as the microaerophilic or the anaerobic type. The results are less brilliant than in the microaerophilic infections, probably because in ordinary infections by the hemolytic streptococcus extensive cellutitis usually prevents close contact of the zinc peroxide. I have observed 2 cases of the condition mentioned by Dr. Fox. It is my impression that most authorities consider it to be caused by a mixture of an aerobic hemolytic streptococcus and Staphylococcus aureus. It often occurs in patients who have had chronic colitis and usually appears with multiple lesions all over the body. These lesions are first vesicular, then pustular and finally gangrenous. An ulcer forms like a ring which gradually spreads, leaving a gangrenous button in the center. I observed a case of that type at the Fordham Hospital. Cultures yielded both a hemolytic streptococcus and Staphylococcus aureus. At one time I think I excised thirty lesions at one sitting and then dressed them with zinc peroxide. Those lesions responded well, but others formed. There were lesions in the mouth and in the lung. The patient had pulmonary hemorrhages and finally died. He also had chronic colitis. With pyoderma gangraenosum there is always gangrene. I believe this undermining, burrowing infection is a pure infection with the microaerophilic hemolytic streptococcus. There is no gangrene with it. I think that in the treatment of any infection in which there is a hemolytic streptococcus zinc peroxide will be effective. For instance, if the crusts of ordinary impetigo contagiosa (which is really a pure infection by a hemolytic streptococcus) are removed and zinc peroxide applied in the form of a cream, the results are excellent. Crusts must of course be removed, so that contact with the lesion may be obtained.

DR. J. GARDNER HOPKINS: Is not scrofuloderma frequently the diagnosis in similar cases?

DR. FRANK MELENEY (by invitation): Usually no tuberculosis is found. In 1 case there was one area that looked like a tubercle. In another case there were many such areas, but Dr. A. P. Stout decided that they were not tubercles, for the organisms could not be demonstrated in them. In all the others, including the case presented today, there were no signs or symptoms of tuberculosis. There were many other organisms, such as Clostridium welchii, Bacillus coli, various staphylococci, Bacillus pyocyaneus and Bacillus proteus, but the essential organism is the microaerophilic hemolytic streptococcus. This has frequently been present in pure culture far back under the flap of skin in a lymph gland or down in a deep sinus. I know that this organism can get into a tuberculous lesion. In 1 case the superficial tissues showed all the characteristics of this infection, but the sinus led down to a tuberculous hip. In another case at the Babies Hospital the organism got into an abrasion made by a cast and caused a characteristic lesion. It was diagnosed as a tuberculous process because the original condition was tuberculous. I believe this organism came from the stool and was rubbed into the abrasion, where it produced this lesion.

DR. GEORGE M. MACKEE: I should like to ask one question: Are the ischiorectal abscess and the perianal abscess in this group, or do they belong to an entirely different group?

DR. FRANK MELENEY (by invitation): Ischiorectal and perianal abscess belong to an entirely different group, but I imagine that this organism can get into one of those lesions and change its characteristics entirely. In none of these 3 cases in which the groin and the scrotum were involved was there any communication with the rectum.

DR. JOSEPH J. ELLER: My experience was with the first case mentioned by Dr. Meleney. Syphilis and tuberculosis were ruled out. Local antiseptics, such as solution of mercury bichloride and of potassium permanganate, produced no results. The results obtained by Dr. Meleney with his treatment were miraculous. I should like to ask a question. Would not one get equally good results from frequent irrigations with hydrogen peroxide?

DR. FRANK MELENEY (by invitation): The action of hydrogen peroxide is too transient. All the oxygen is given off almost immediately.

QUESTION: What is the habitat of the organism?

DR. FRANK MELENEY: I think its habitat is the intestinal tract. The organism may be an ordinary hemolytic streptococcus which has acquired anaerobic properties in the intestinal tract. It may appear for that reason in any one's stool. I believe it gets into the vagina and may stay there for some time. I do not believe it is a separate species. After it becomes aerobic, it cannot be differentiated from the ordinary hemolytic streptococcus.

EUGENE F. TRAUB, M.D., *President*

Jan. 25, 1938

FRANK C. COMBES, M.D., *Secretary*

Cavernous Angioma of the Feet. Presented by DR. FRANK C. COMBES.

L. S., a girl aged 6 months, presents a bilateral diffuse swelling of the dorsa of both feet, especially the left. The skin appears normal, but the tissues pit on pressure, slowly returning to normal. The circumference of the right calf is slightly greater than that of the left. Acupuncture of the dorsum of the left foot resulted in oozing venous blood. Cytologic examination of the blood and a roentgenogram of the lower extremities showed no abnormality. The patient is presented for suggestions as to therapy.

DISCUSSION

DR. J. FRANK FRASER: I do not agree with the diagnosis of cavernous angioma. The appearance of the lesions suggests some form of edema.

DR. T. J. RIORDAN (by invitation): I do not like the use of sodium morrhuate as a treatment for cavernous angioma or varicose veins. In this case the fact that one side cleared up would make me believe that the other lesion should be left alone.

DR. HOWARD FOX: I cannot see any evidence of angioma in this case. The patient presents edema which pits on pressure, a condition which is not present in angioma. The disease known as oedema neonatorum is extremely rare and in most instances is rapidly fatal. I should certainly exclude so-called fat necrosis of the newborn in this case, as this disease usually appears soon after birth and disappears spontaneously within five months. The lesions of fat necrosis are hard to the touch and do not pit on pressure. Furthermore, the borders of the infiltra-

tions are well defined and do not fade gradually into the normal skin as in this case. I should call the condition edema of unknown origin.

DR. R. H. RULISON: I suggest the possible clinical diagnosis of lymphhemangioma.

DR. GEORGE M. MACKEE: I feel rather positive that this condition is not angioma. Cavernous angiomas are not present at birth and do not pit on pressure, and they are seldom bilateral. I lean much toward the view expressed by Dr. Fox. My tentative diagnosis is localized scleredema.

DR. EUGENE F. TRAUB: I agree with those who do not believe this condition is any type of angioma. It seems to be made up of two separate and distinct parts. One consists of edema of the extremities, and the other is composed of definite hard plaques, which are sharply outlined and have a definite border. But for the reasons that Dr. Fox outlined, I should have considered subacute fat necrosis of the newborn in an unusual location, and in spite of the reasons given by Dr. Fox, the condition may still be an unusual example of that disease. The diagnosis suggested by Dr. MacKee may, however, be the more likely one.

DR. FRANK C. COMBES: When I originally saw this patient, I took into consideration all the diagnoses which have been suggested. The reason I eliminated localized scleredema was that I had never seen or heard of its being so localized in a child in such good health. The pediatricians saw this baby and, besides the diagnoses of angioma and lymphangioma, suggested thrombus. Of course, cavernous angiomas are not present at birth. With regard to the pitting, several years ago I presented a girl who had an enormous angiomatous nevus, which involved the entire left leg and pitted on pressure as this lesion does (ARCH. DERMAT. & SYPH. **22**:729 [Oct.] 1930).

Leprosy (Mixed Type). Presented by DR. HOWARD FOX.

C. S., a miner aged 39, born in Pennsylvania, states that he first noticed signs of leprosy six years ago. He had previously been a sailor for nine years, frequently visiting Cuba and South American ports. He now presents great enlargement of the ulnar nerves, which are insensitive to pressure, enlargement of both great auricular nerves, wrinkling of the skin of the backs of the hands, atrophy of the dorsal interosseous muscles, partial contracture of the right little finger and numerous crusted ulcerations on the hands. There are slight yellowish blotchy discoloration and infiltration of the face, infiltration of the right lobule and moderate hoarseness. There is a generalized eruption of maculopapules, tending to clear in the center and showing complete anesthesia to the prick of a pin. The patient is a vigorous, muscular man, whose general health is fair. A previous examination of a nasal smear showed no bacilli.

DISCUSSION

(There was unanimous agreement with the diagnosis as presented.)

Adenoma Sebaceum. Presented by DR. HOWARD FOX.

F. P. P., a man aged 23, has suffered from an eruption as long as he can remember. No member of his family has been similarly affected. The eruption is symmetric and profuse and involves the forehead, the cheeks, the bearded region and the greater part of the scalp, particularly the frontal portion. The nose, the neighboring parts of the cheeks and the upper lip are not affected. The eruption consists of closely crowded light red hemispherical papules varying in size from that of a pinhead to that of a millet and tending to coalesce. Most of the lesions are moderately firm, a few being hard, like keloids. There is a moderate amount of acne vulgaris on the shoulders. The patient's intelligence appears to be somewhat below the average. The diagnosis was confirmed by histologic examination.

DISCUSSION

(There was unanimous agreement with the diagnosis as presented.)

Squamous Cell Epithelioma of the Buttock. Presented by Dr. J. Frank Fraser.

F. S., a woman aged 31, states that she has had epilepsy since the age of 7 years. She takes phenobarbital but no bromides. The present lesion appeared three years ago as an ulcerated area with scab formation on the left buttock. This was desiccated eighteen months ago, but the growth promptly recurred. The lesion has grown to the size of a silver dollar and presents an ulcerated surface with a firm raised border. The histologic picture is that of an epidermoid carcinoma, grade 3.

DISCUSSION

Dr. George M. MacKee: There is no question about the diagnosis of epithelioma, clinically or histologically. The main problem here is therapeutic. A grade 3 tumor is radiosensitive, and regardless of what else may be done I think that the patient should receive high voltage roentgen or radium therapy. The chances are that metastasis has already occurred and will show up later in some of the neighboring glands. A grade 3 or a grade 4 tumor is apt to undergo early metastasis. For that reason I should be inclined to irradiate both the involved area and the lymphatic glands in the line of drainage. The tumor probably can be handled by irradiation alone, but I favor excision plus roentgen or radium therapy.

Dr. A. Benson Cannon: I agree for the most part with Dr. MacKee. I do not believe that one can always determine the degree of malignancy from the histologic picture alone. I think it advisable to compare the clinical findings with the microscopic picture before determining the extent of the operation. The clinical appearance of the small lesion on the buttock does not give me the impression of a very malignant type of growth, as it is firm and rolled, denoting a well protected zone; there is no redness at the margins, and the base of the lesion is dry. The histologic picture corresponded with what one sees clinically. There were downgrowths of strands of carcinoma, reaching only to the cutis, and in no place could I see a breakage of the basement membranes of these tumorous growths. The malignant cells appeared large, soft and juicy, with numerous mitotic figures, but they were well walled off, with a cellular infiltration mainly composed of plasma cells. There were not much edema and no malignant cells in the perivascular or lymphatic spaces. The middle and deep portions of the cutis and the subcutaneous fat were free from signs of malignancy and cellular inflammation, the whole picture giving me the impression of a well walled-off growth. I think that such a picture would indicate a good prognosis, and the growth should be thoroughly excised and the parts sutured. There are no evidences of metastases in the surrounding lymphatic glands. One might take the precaution to remove one of the small inguinal glands for histologic section. I removed a large, more extensive growth—one apparently much more malignant than that seen in this patient—from a woman's buttock more than a year ago by the method described, and there has been no evidence of recurrence.

Dr. Eugene F. Traub: I think Dr. Fraser's point about the location of this lesion is important from the standpoint of metastasis, prognosis and treatment. Ordinarly I believe a squamous cell epithelioma of the glabrous skin of this particular type and located in this general region but not at a site subjected to pressure is not so likely to metastasize early as are similar lesions in other locations. For that reason I agree with what Dr. Cannon has said, and I should look on this lesion as a fairly localized process at present. I should use the electric cutting current to remove the growth. In all the cases of squamous cell epithelioma that I followed and reported, I applied radiation immediately after excision, but later I found that there was no necessity for this irradiation when excision with the electric cutting current had been thorough. I did not observe a single local recurrence following such thorough excision.

Dr. J. Frank Fraser: I wish to emphasize again the limitations to the value of Broder's grading of epidermoid carcinoma. Histologically, this tumor is highly malignant (grade 3). Other factors in this case, however, make it clear that

microscopic grading must not take the place of clinical judgment. One must consider the location of the tumor, its rate of growth and the involvement of the lymph nodes. If this lesion were in another location, on the tongue for example, and the microscopic grading were even as low as grade 1, the prognosis might be more unfavorable than that of a grade 3 growth on the buttock, where the lymphatic distribution is not so favorable for metastasis.

I think excision is preferable to irradiation. The growth is well localized, and there is no apparent involvement of the lymph nodes. A previous removal eighteen months ago by desiccation, followed by infection, would seem to constitute a contraindication for irradiation.

A Case for Diagnosis (Multiple Neuromas?). Presented by Dr. Frank C. Combes.

M. W. D'V., a Negress aged 17, presents a lesion of fourteen months' duration. It is unilateral and extends from the right infraclavicular region along the inner aspect of the arm and the flexor surface of the forearm, in linear configuration, corresponding to the distribution of the median nerve. It consists of macular slate-colored areas of pigmentation and numerous subcutaneous noninflammatory nodes, varying in diameter up to 1.5 cm. There are about twenty of these lesions. On lateral pressure they are tender and suggest Recklinghausen's disease clinically.

DISCUSSION

Dr. Howard Fox: In discussing this case at the staff meeting at the Bellevue Hospital, one member expressed the thought that the condition should be called an atypical form of Recklinghausen's disease, on account of the plexiform neuroma characteristic of this disease. The unilateral distribution, together with the appearance of the eruption, is strong evidence of a nevus in the broad sense. I should be somewhat hesitant, however, in classifying this condition as Recklinghausen's disease.

Dr. A. Benson Cannon: I think the case one of linear hypertrophic nevus and should try to explain the narrow fibromatous cutaneous and subcutaneous plaques on the edge of the linear nevus on the forearm as part of the same process. I do not see any evidence of Recklinghausen's disease. There is no pigmentation, except that in the warty, linear process, and no fibrous tumors of the skin, nor do I notice any of the purse-string-like, invaginated tumors so characteristic of Recklinghausen's disease.

Dr. J. Frank Fraser: I disagree with those who favor the diagnosis of linear nevus. As far as I am aware, one does not find painful subcutaneous nodules in a linear nevus. What is seen here is a series of such nodules along the course of the peripheral nerves and areas of pigmentation. These features are characteristic of Recklinghausen's disease.

Dr. Paul E. Bechet: The lesions resemble Recklinghausen's disease, but they are entirely too localized to justify that diagnosis. It is possible for a linear nevus to occur late, and it frequently assumes different characteristics, being sometimes verrucous and sometimes nodular or tumor-like. The distribution is definitely linear. I believe the condition is a nevus of the linear type with lesions typical of neurofibroma.

Dr. George M. MacKee: I think it is an unusual linear nevus with pigmentation and neurofibromas, naevus pigmentosus et neurofibromatosus. In other words, I agree with Dr. Fox's interpretation of the case.

Dr. R. H. Rulison: I favor Dr. Fraser's explanation of the lesion and his diagnosis of Recklinghausen's disease.

Multiple Idiopathic Hemorrhagic Sarcoma (Kaposi). Presented by Dr. R. H. Rulison.

M. LaC., a man aged 56, is presented from the New York Eye and Ear Infirmary. He was well until eight months ago, when a small purplish tumor appeared on the upper right eyelid near the outer border. Within a short time two similar

lesions developed in close apposition to the first, and similar lesions have developed on the right ear and the neck, with a few on the chest and one on the upper outer aspect of the right leg. There were no other lesions on the lower extremities.

Sections of one of the tumors removed from the submental region were examined by Dr. G. F. Machacek, and the condition was diagnosed as Kaposi's sarcoma.

The patient is shown because of the unusual distribution of the lesions and because he reports several hemorrhages from the tumors on the upper eyelid. He states that the first tumor was noticed shortly after a severe fright.

DISCUSSION

DR. HOWARD FOX: The location of the eruption is unusual, and I do not recall ever having seen lesions of Kaposi's sarcoma on the eyelids. These tumors to me look like some other type of sarcoma. The diagnosis, however, has been settled by histologic examination.

DR. EDWARD R. MALONEY: I think the distribution is unusual for Kaposi's sarcoma. I have never seen lesions distributed like this in Kaposi's sarcoma; as Dr. Fox said, the lesions around the eye look like those of Kaposi's sarcoma, but there are some characteristics that do not fit into that picture. I wonder if this condition is some type of hemorrhagic sarcoma which differs from the picture described by Kaposi.

DR. J. FRANK FRASER: I observed this case in consultation at the Skin and Cancer Unit of the New York Post-Graduate Medical School and Hospital. The sections which I examined harmonized fully with the clinical diagnosis of Kaposi's sarcoma. The distribution of the lesions is unusual, but other cases in which the distribution was unusual have been reported. Ewing observed a case in which there was a single lesion only, located on the tongue. Dr. Maloney's statement that the condition in this case is different from that described by Kaposi is correct, but this fact does not militate against the presenter's diagnosis, because in all the cases which are recognized today as instances of Kaposi's sarcoma the histologic picture is different from Kaposi's original description. Kaposi described the disease as round cell sarcoma. I have never observed a case of this type of tumor in which there was a histologic picture of round cell sarcoma.

DR. GEORGE M. MACKEE: The nodules look to me like those of Kaposi's sarcoma, and I refuse to be sidetracked by the unusual location. The histologic picture confirms the diagnosis.

DR. EUGENE F. TRAUB: The members may recall one of the cases I presented here a number of years ago (ARCH. DERMAT. & SYPH. **26**:745 [Oct.] 1932) because of the unusual lesions in the mouth and on the ear. The patient had one or two other lesions near the eyes, but I do not believe there were any lesions on the eyelids.

DR. R. H. RULISON: This patient was shown because of the curious and unusual distribution of the lesions. I saw him for the first time today. I took him to Dr. Bernard Samuels' clinic, and Dr. Samuels and some of the other ophthalmologists looked at the patient. They all said they had never seen such a lesion on the eyelid. One physician said there had been one in a case at the Bellevue Hospital. Several of them had seen lesions on the ear. The patient is presented only because of the unusual location of the lesions.

A Case for Diagnosis (Mycosis Fungoides? Lymphoblastoma?). Presented by DR. HOWARD FOX.

J. H., a man aged 64 years, was previously presented by Dr. David Bloom on Jan. 11, 1938, at a meeting of the Manhattan Dermatologic Society (ARCH. DERMAT. & SYPH. **37**:918 [May] 1938).

DISCUSSION

DR. FRANK C. COMBES: These new polymorphous lesions, of varying degrees of infiltration, have occurred in the past few days. They were not present last Sunday. They are suggestive of mycosis fungoides.

DR. A. BENSON CANNON: I think that this case is one of mycosis fungoides. I do not recall any other disease or any drug eruption that would produce bluish red tumors with gyrate and circinate lesions resembling those of erythema multiforme, such as are presented in this case.

DR. PAUL E. BECHET: I am not so sure the new lesions are suggestive of mycosis fungoides. I do not think it is possible entirely to eliminate circinate erythema multiforme. The infiltration is rather more edematous than solid and more suggestive of erythema multiforme than of mycosis fungoides. There is a sharply marginated flat lesion on the heel. I wonder if the condition could be atypical Kaposi's sarcoma. The eruption belongs to the lymphoblastoma group, but while mycosis fungoides is a member of that group, I should consider that diagnosis last.

DR. J. FRANK FRASER: I favor the diagnosis of mycosis fungoides for the following reasons: 1. The nodules developed primarily in the skin and not in the lymph nodes. The primary lesion in the other diseases of the lymphomatoid group has its origin in the nodes. 2. There is infiltration at the border of the lesions, with gradual recession toward the center. 3. There has been spontaneous resolution. I feel satisfied that if another biopsy were performed the sections would show the characteristic histologic features of mycosis fungoides.

DR. EDWARD R. MALONEY: I think the proper diagnosis in this case is lymphoblastoma, probably mycosis fungoides. The fact that the new lesions shown tonight are so recent might support Dr. Bechet's suggestion. I think the lesions in mycosis fungoides are usually of much deeper color and have generally lasted for some time before they are noticed. I do not think that makes the diagnosis of probable mycosis fungoides untenable. Therefore, I say the proper diagnosis is lymphoblastoma, probably mycosis fungoides.

DR. T. J. RIORDAN (by invitation): On the few indications appearing in the section, I took a chance and gave as my personal opinion that this condition was mycosis fungoides or, rather, that it would turn out to be mycosis fungoides when a good biopsy specimen was examined. With this in my mind, the diagnosis of lymphoblastoma was reported.

DR. R. H. RULISON: I agree with the diagnosis of mycosis fungoides and think the disease will become the fungating type if untreated.

DR. HOWARD FOX: The unusual factor in this case is the change that has occurred within the last two days. Within that period erythematous plaques strongly suggestive of mycosis fungoides have appeared on the trunk and the arms.

A Case for Diagnosis (Dermatitis Medicamentosa [Arsphenamine]?) in a Patient under Treatment for Syphilis. Presented by DR. EUGENE F. TRAUB.

J. R., a man aged 31, was first seen at the Skin and Cancer Unit of the New York Post-Graduate Medical School and Hospital on Jan. 24, 1938, with an eruption of eight weeks' duration. He stated that he had contracted syphilis in July 1937 and had received approximately twenty injections of arsphenamine and eight injections of a bismuth preparation. Eight weeks ago, while he was still under treatment, the present rash appeared and has gradually spread and become generalized, covering most of his trunk, neck, scalp, arms and legs. His eruption appears to be either erythematosquamous or bullous with superficial crusting. It is difficult to tell which it is. The patient states that the eruption is moist, and in my opinion the majority of the lesions are crusted rather than scaly. The patches are discrete and sharply localized, and each lesion could well represent a dried-up bleb. Severe pruritus is present.

DISCUSSION

DR. HANS J. SCHWARTZ: I believe the eruption is due to arsphenamine.

DR. FRANK C. COMBES: In my opinion the essential lesion here was a bulla. What is now seen is their remains. Most of the lesions seem to have a collaret around the edge, whereas the centers show piled-up psoriasiform scales which give the impression of psoriasis.

DR. PAUL E. BECHET: I believe this eruption was moist at one time or another and that the scales are caused by the drying of an oozing surface. The lesions resemble erythema multiforme, but whether they are due to arsphenamine I cannot say.

DR. J. FRANK FRASER: From the fact that this eruption developed suddenly while the patient was undergoing a course of intravenous injections of arsphenamine, I should be inclined to call it an arsphenamine dermatitis.

DR. A. BENSON CANNON: I believe the case is one of arsphenamine dermatitis of the moist type.

DR. EDWARD R. MALONEY: It is possible that this eruption was bullous some time ago, but I certainly cannot see any evidence of that tonight. What I see tonight is an eruption decidedly like psoriasis because of the scales, and although I have never heard of such a diagnosis before, I should be inclined to call this a psoriasiform arsphenamine dermatitis.

DR. HOWARD FOX: I agree entirely with Drs. Cannon and Maloney that this is an arsphenamine dermatitis resembling psoriasis, which is merely one of many types of eruption, such as lichen planus, that arsphenamine dermatitis may simulate. I think that the bullae are not an essential part of the process. The eruption in this case appeared after the twelfth injection. This harmonizes with our experience at the Bellevue Hospital, where arsphenamine dermatitis has appeared on an average after the eleventh injection.

(Drs. R. H. Rulison and George M. MacKee agreed with the previous speakers.)

DR. EUGENE F. TRAUB: It was impossible to get an accurate history of the timing of his previous treatment, because, although the patient appears intelligent, he answers all questions in a vague manner. Once he told me that he had had twelve injections in the arm and then twenty intramuscularly, and it was after an injection in the arm that the eruption appeared. I had to assume that this injection was arsphenamine. The total number of injections that he received has been small, and they were scattered over six months, so that his treatment has been irregular. While the eruption may have followed a twelfth injection of arsphenamine, as near as I can tell from the history it followed either the first or the second injection of arsphenamine on a new course rather than all the injections of arsphenamine given in one continuous series. He has had several injections of a bismuth preparation since the appearance of the eruption. This medication may or may not have aggravated the rash, which has been getting progressively worse since its onset. I presented the patient because many of the features of the eruption suggested the Senear-Usher type of pemphigus, which in this case was probably caused by arsphenamine.

Multiple Idiopathic Hemorrhagic Sarcoma (Kaposi). Presented by DR. J. FRANK FRASER.

F. K., a man aged 63, born in Czechoslovakia, has a single lesion on the inner aspect of the lower part of the left leg. It is sharply outlined, palm sized, raised and dull purplish red. In places the area is covered by thick warty crusts. There are several rather large varicose veins.

Laboratory examinations showed no abnormality. Sections examined microscopically showed the histologic picture of Kaposi's sarcoma.

Since August 1937 he has received two treatments of ¼ skin unit of unfiltered roentgen rays and three treatments of ¾ skin unit filtered with 3 mm. of aluminum, and the lesions have become softer, paler and less warty.

Linear Dermatitis from Contact with Jellyfish. Presented by Dr. Howard Fox.

A. K., a physician aged 40, while swimming at Miami Beach, Fla., on Dec. 29, 1937, suddenly noticed that a large jellyfish had wound its tentacles around his right forearm. This caused an immediate burning sensation "like hot electric wires," associated with numbness of his hand. The jellyfish was dislodged as quickly as possible, and no change was noted in the skin at that time. The patient then visited a first aid station, where concentrated ammonia water was applied. This relieved the burning sensation. He then soaked the forearm in hot water and while doing so noticed pinkish wheals in the areas where the tentacles had been in contact with the skin. There had been itching, but this lessened, and the patient slept well that night. On the following morning, after he had washed in fresh water, wheals again appeared in the same areas. They continued to appear for three days and then disappeared, leaving linear streaks, two of which were plainly visible ten days later, when the patient was seen by me. He then showed two dull reddish streaks about 0.75 mm. wide, which were not appreciably elevated. There were two separate linear lesions, one of which extended obliquely across the lower two thirds of the extensor surface of the forearm and the other of which was present on the flexor surface. The linear lesions were partly interrupted, as if composed of closely set dots and dashes. On January 29, one month after contact with the jellyfish, only a slight trace of the eruption remained. When first seen, the linear lesions suggested larva migrans, particularly since the patient had recently been in Florida.

Linear dermatitis from contact with jellyfish.

Atypical Lichen Planus. Presented by Dr. Paul E. Bechet.

MANHATTAN DERMATOLOGIC SOCIETY

Andrew J. Gilmour, M.D., *President*

Feb. 8, 1938

Anthony C. Cipollaro, M.D., *Secretary*

A Case for Diagnosis (Pyogenic Ulceration of the Nose). Presented by Dr. Maurice Costello (by invitation).

M. F., a woman aged 59, a teacher, has had an ulcer of the right side of the nasal septum and the floor of the right nasal cavity for the past thirteen months. It has increased in extent in spite of treatment.

She was first seen by me six weeks ago, at which time she had an extensive ulceration involving the mucous membrane of both nasal cavities, with an irregular vertical perforation of the anterior portion of the nasal septum. The floor of the ulcer was covered with a tenacious seropurulent exudate. The skin of the cartilaginous portion of the nose was red and edematous. There was practically no pain.

Frequent microscopic examinations of smears showed no Vincent organisms or tubercle bacilli. The Gram stain showed occasional gram-positive cocci which resembled pneumococci. Cultures showed hemolytic streptococci. The Wassermann and the Kline precipitation test have given negative results on three occasions. The sugar content of the blood is 114 mg. per hundred cubic centimeters. Urinalyses have shown no abnormality, and the differential leukocyte count showed 12,000 polymorphonuclear leukocytes.

Roentgenograms of the maxillary bones showed no abnormality. A roentgenogram of the chest showed numerous calcifications and a general peribronchial thickening throughout each lung, particularly of the lower part of the lobe of the right lung.

Several histologic examinations have been made. The first showed "chronic suppurative inflammation." A specimen from the nasal mucous membrane showed "hyperkeratotic papilloma," and one from the skin showed "hyperplastic inflammatory tissue."

In the past six weeks the patient has received five intravenous injections of neoarsphenamine, two of bismarsen and daily oral administration of 4 fluidrachms (14.79 cc.) of saturated solution of potassium iodide. During antisyphilitic therapy there was no appreciable improvement in the lesion. Local therapy has consisted of irrigations with solution of boric acid and application of 1 per cent yellow mercuric oxide.

Two weeks ago the patient was tested with old tuberculin, with dilutions of 1:100,000, 1:1,000,000, 1:10,000,000 and 1:100,000,000, on the forearms. The sites of the injections became markedly erythematous and swollen; in forty-eight hours a bulla developed at the site of each injection, and there were three reddened infiltrations, two on the right arm and one on the left arm, above the sites of injections. The bullae were followed by ulcerations, which were all of equal size, despite the difference in dilution of the tuberculin.

The patient's general health has always been good, except for an eruption of the palmar surfaces of the tips of the fingers during the winters of 1903, 1906, 1912 and 1913, which consisted of deep indolent ulcerations. The resulting scars are still visible. She had herpes zoster of the right side of the thorax nine years ago. She has lived in the city of New York all her life.

DISCUSSION

DR. HOWARD FOX: When I first saw this patient, the eruption suggested either tuberculosis or nodular syphilid. Her age was against the diagnosis of lupus vulgaris. On the other hand, the lesions did not show the usual asymmetry of tertiary syphilid. Although there was no response to arsphenamine or to a bismuth preparation, the eruption has almost cleared under treatment with iodides. I am unable to make a diagnosis.

DR. DAVID L. SATENSTEIN: I do not question the reaction to tuberculin. I am under the impression that this patient has an artefact due to picking of the nose. I asked her about that, and she admitted that she always picks off the scab. That probably accounts for the lack of response to the various forms of therapy used.

DR. WILLIAM ABRAMOWITZ: I wonder if a patient may show a false positive reaction to a tuberculin test while taking iodides.

DR. DAVID BLOOM: The fact that the condition has responded to administration of iodides does not speak absolutely for the diagnosis of syphilis. In some of the German pharmacologic books iodides are recommended in the treatment of cutaneous tuberculosis.

DR. MAURICE COSTELLO (by invitation): The cause of the recovery of this patient is a matter for speculation. During active antisyphilitic treatment there was no improvement, but it was almost immediate after the tuberculin tests. The explanation of the severe reaction, which was similar with all dilutions of tuberculin, is a problem. I am inclined to believe that the administration of iodides to the point of saturation played a role in this peculiar reaction. The patient misunderstood Dr. Satenstein's question in regard to picking her nose. She meant that picking in the beginning might have caused this infection.

A Case for Diagnosis (Glomus Tumor?). Presented by DR. DAVID BLOOM.

L. B., a Jewish-American housewife aged 41, has had psoriasis under the breasts and in the genital region for about fifteen years. The patient is married and has two children, who are well. Six years ago a uterine tumor was removed, and one year ago complete hysterectomy was done. The patient is presented because of a painful swelling underneath the left thumb nail, which is of about fourteen years' duration.

There is no definite history of injury, but the patient has a vague idea that she injured her finger nineteen years ago while handling safety pins in applying a diaper. She has been complaining of extreme pain in the area. It frequently radiates to the left arm and the breast. This pain is described as stabbing. It is intermittent and may last for hours, days or weeks. Often the patient wakes up in the middle of the night because of severe pain. Striking the thumb is painful. Usually, however, the pain is spontaneous. The patient has noticed that when she lies on her right side pain is more intense in the left thumb. When reclining, she is in the habit of elevating the left arm, for the pain is more pronounced when the thumb is dependent. Pain is more pronounced when the thumb is immersed in water.

The left thumb nail is split longitudinally. Splitting extends to the middle of the nail, somewhat above the region of the lunula. The nail slants steeply to both sides of this split area. Proximal to the split line and involving the region of the lunula and the skin adjacent to the nail, there is a raised swelling about 1 cm. in diameter, which is reddish blue in the area of the nail, more intensely red in a lentil-sized area just proximal to the split line and skin colored in the area proximal to the nail. Pressure with a pointed blunt instrument elicits only slight discomfort, particularly in the cutaneous region. Pressure with the finger on the whole surface of the swelling, however, produces more pain. Immersion in cold water did not produce any pain when this was done in the office.

About eleven years ago the nail was removed by a surgeon while the patient was under general anesthesia, and a small exuberance of "granulation" tissue was noted but was not examined microscopically. The operation was followed by severe pain in the ungual region, which was not of the same character as that previous to the operation but was, according to the patient, more like the pain of an open wound. The nail which regrew showed the same deformity. The usual pain, which had existed for several years prior to the operation, returned a few months later and has persisted since then.

A roentgenogram of the terminal phalanx of the thumb reveals a tiny foreign body apparently more distal than the tumor and having no connection with it.

DISCUSSION

DR. GEORGE M. LEWIS: Is it not true that this condition usually is extremely painful under pressure? There does not seem to be any marked tenderness or pain in this instance. Perhaps previous therapy has changed the picture.

DR. DAVID L. SATENSTEIN: I should like to cite a case of F. D. Weidman and F. Wise (Multiple Glomus Tumors of Order of Telangiectases, ARCH. DERMAT. & SYPH. **35**:414 [March] 1937). In that case a woman had forty or fifty lesions, and there was no pain. The lesions were all over the body. The microscopic picture was that of classic glomus tumor.

DR. DAVID BLOOM: I arrived at the conclusion that this case is probably one of glomangioma: (1) because of the location of the small tumor, for of 65 cases reviewed by O. T. Bailey (Cutaneous Glomus and Its Tumors—Glomangiomas, *Am. J. Path.* **11**:915 [Nov.] 1935) the lesion in 21 was located in the nail bed; (2) because the excruciating neuralgic pain radiating to the arm and the breast from this tiny tumor is most characteristic for such lesions. This symptom seems to be particularly characteristic of lesions under the nail. In the case reported by Weidman and Wise the lesions were located on the trunk and were free from pain. The fact that the tumor persisted and the patient did not get relief from operation eleven years ago is probably due to the fact that the tumor was not removed in its entirety. It may have been overlooked entirely because of its tiny size. I intend to have this tumor removed and examined microscopically.

Dermatophytosis; Onychomycosis. Presented by DR. GEORGE M. LEWIS.

S. K., a man aged 31, a teacher, has had an eruption on his hands and feet due to Trichophyton purpureum for over fifteen years. The nails of both hands and feet have a moth-eaten appearance, with loss of nail substance, and are yellowish, opaque and lusterless. The skin on the fingers of the left hand shows scaling, thickening and some fissures. The soles reveal ill defined dull red scaly patches. Cultures repeatedly showed T. purpureum. The histologic report stated that there was nothing pathologic in the tissue submitted. There was an immediate wheal reaction to trichophytin but no reaction after forty-eight hours or after one week. Treament included seventy-two injections of the Bischoff trichophytin (dermatomycol), roentgen therapy, surgical avulsion of nails and topical remedies of strong concentration.

Dermatophytosis (Trichophyton Purpureum). Presented by DR. GEORGE M. LEWIS.

L. H., a salesman aged 30, complains of an eruption on his feet and his hands, of five years' duration. There has been a gradually increasing area of skin affected. Examination reveals a diffuse dry dull red scaly eruption involving the soles and the palms. There is a sharp demarcation between normal and involved skin on the sides of the feet. The histologic picture showed slight acanthosis, some perivascular round cell infiltration and fibroblasts (indicating a long-standing dermatitis). There was a moderate reaction to trichophytin after twenty minutes but a negative reaction after forty-eight hours. Trichophyton purpureum was isolated on culture from both the hands and the feet.

Dermatophytosis; Tinea Glabrosa. Presented by DR. GEORGE M. LEWIS.

W. S., a chauffeur aged 28, has been aware of an eruption on the feet during the past seven months. There are scaling and maceration between the toes and dull red scaly plaques on the soles. On the buttocks are palm-sized erythematous and scaly patches, with clearing centers and irregularly outlined edges. The color of the affected skin is dull red. Trichophyton purpureum was grown on culture of material from the feet and the buttocks. There was an immediate wheal reaction to trichophytin and a negative reaction after forty-eight hours.

DISCUSSION OF CASES OF DERMATOPHYTOSIS

DR. E. WILLIAM ABRAMOWITZ: I have observed several cases in which Dr. Lewis found Tr. purpureum. The eruptions have been resistant to treatment. The condition of the nails and the associated red borders on the feet are interesting observations. How often will red borders on feet show this organism? The immediate reaction is significant. I am anxious to see what further studies will bring out in connection with this type of eruption. In some cases an eruption of this type has probably been classed as occupational dermatitis or psoriasis. I think it is important to have this group of conditions differentiated from other types of eczematous eruptions.

DR. HOWARD FOX: Dr. Lewis is trying to show that certain clinical manifestations are due to a particular species of ringworm fungus. Some of the features, like the red knuckles in which he has found fungi, are seldom recognized as part of such an infection. In regard to the nails, cure has rarely been obtained by curetting followed by application of compound ointment of benzoic acid.

DR. DAVID L. SATENSTEIN: I do not think this condition is a clinical entity, because of the few cases presented, but if Dr. Lewis can prove his point in a large series of cases, it may be considered as such.

DR. LUDWIG OULMANN: I should like to ask Dr. Lewis if he has always seen the same clinical picture in cases of infection by T. purpureum and if he has seen no other growth in association with the clinical picture he showed tonight.

DR. ISADORE ROSEN: I should like to ask Dr. Lewis whether he considers all these patients to be suffering from the same disease, in view of the fact that 2 of the patients showed no clinical evidence of ungual involvement.

DR. DAVID BLOOM: I am particularly interested in the dry scaly lesions on the palms of some of the patients, for in my practice that condition has resisted treatment. It would be of extraordinary interest if this clinical picture is a manifestation of infection with T. purpureum.

DR. GEORGE M. LEWIS: From the study of several hundred patients with cutaneous manifestations due to this organism, I have come to the conclusion that there are sufficient characteristic features to justify considering the rash due to T. purpureum a definite clinical entity, comparable to the eruption due to Achorion schoenleinii. The cases presented here are representative, and the same characteristics are observed over and over again. It is my opinion that infection due to T. purpureum is more common than is generally supposed. The nails are not always involved. I have recently observed that a considerable number of patients with this infection give an immediate wheal reaction to trichophytin. The prognosis should be guarded. Treatment is extremely difficult. I have had best results from the prolonged use of topical remedies. Vaccinotherapy and roentgen therapy have proved of no value in my hands.

Granuloma Annulare. Presented by DR. ANTHONY C. CIPOLLARO.

H. W., a woman aged 45, came to the Skin and Cancer Unit of the New York Post-Graduate Medical School and Hospital on Feb. 2, 1938, because of an eruption of six months' duration.

The personal and the family history are irrelevant. The patient now presents slightly raised and infiltrated skin-colored lesions on the left elbow, the lateral surface of the left thigh and the dorsa of both feet. The lesion on the elbow is a plaque about the size of a dime. The lesions on the thigh and the feet are made up of pinhead-sized infiltrated lesions with no definite tendency to grouping in ring formation.

Histologic examinations of lesions removed from the elbow and the left foot confirmed the diagnosis of granuloma annulare.

DISCUSSION

DR. E. WILLIAM ABRAMOWITZ: I favor the diagnosis of granuloma annulare, for the simple reason that the lesions are located over the areas of pressure. The histologic picture conforms with that diagnosis.

DR. PAUL E. BECHET: It is difficult for me to make a diagnosis of granuloma annulare. Some of the lesions on the big toe were sufficiently ringlike to suggest that diagnosis, but the other lesions did not seem to resemble granuloma annulare at all.

DR. DAVID L. SATENSTEIN: As far as the microscopic features are concerned, granuloma annulare is not characteristic in certain types of cases. E. Graham Little wrote about this thirty years ago (Granuloma Annulare, *Brit. J. Dermat.*

20:214 [July]; 248 [Aug.]; 281 [Aug.]; 317 [Oct.] 1908). He described three types of reaction. I have specimens showing the various types. In this case the picture is the characteristic one usually described in textbooks.

A Case for Diagnosis (Erythema Annulare Centrifugum [Darier]?). Presented by DR. E. WILLIAM ABRAMOWITZ.

M. R., a woman aged 46, was first seen at the Skin and Cancer Unit of the New York Post-Graduate Medical School and Hospital on Feb. 2, 1938, with an eruption of two years' duration. On the back there is a palm-sized group of irregular circular lesions. Each of these is about the size of a quarter and presents a red elevated border with a clean center. Older patches are slightly pigmented. There is no discernible atrophy. Most of the eruption is to the left of the spine. The patient complains of itching. Histologic examination showed an "urticarial type of reaction."

NOTE.—The Wassermann reaction was negative, and an intracutaneous test with trichophytin did not result in an immediate reaction. No fungi were found in scrapings from the lesion on the back.

DISCUSSION

DR. ISADORE ROSEN: I am not in favor of a diagnosis of erythema annulare centrifugum because of the isolated shiny lentil-sized papular lesions grouped in an irregular annular fashion. Clinically, the eruption suggests either syphilis or sarcoid.

DR. DAVID L. SATENSTEIN: Here is an instance in which the microscopic picture might not fit in with the clinical features. Dr. Rosen suggested the possibility that the condition is sarcoid clinically; yet in the histologic picture are changes that go with erythema annulare. Because of the microscopic and the clinical picture, I am willing to accept the diagnosis of the presenter.

A Case for Diagnosis (Lichen Planus? Lupus Erythematosus?). Presented by DR. ANTHONY C. CIPOLLARO.

A. R., a woman aged 33, was first seen at the Skin and Cancer Unit of the New York Post-Graduate Medical School and Hospital on Jan. 13, 1937, because of an eruption of two years' duration.

The family and the personal history are irrelevant. The patient now presents a lesion on the right side of the chin extending from the lip to the mandible and of approximately the size of a 50 cent piece. The center of the lesion is made up of many small depressed scars, grouped to give the appearance of a coarse sieve. Along the periphery there are definite erythema and infiltration. The border of the lesion appears to be vesicular. On the left side of the chin there is a similar lesion about the size of a dime. There are lesions on the buccal mucosa, extending from the lips to the mandibular joint. The lesions are white patches with irregular outlines and are slightly infiltrated.

The Wassermann and the Kahn reaction of the blood were negative. Repeated examinations failed to show fungi. The sugar content of the blood was 90 mg. per hundred cubic centimeters. Histologic examination of tissue removed from the right side of the chin showed a follicular cyst, and study of a specimen from the right buccal mucosa, a picture which might have "fit in with retrogressing lichen planus. There was no evidence of syphilis."

DISCUSSION

DR. ISADORE ROSEN: This condition shows a close similarity to tertiary syphilis. The lesions on the buccal mucosa look like leukoplakia, and that on the chin resembles a gummatous ulceration. At present I should be inclined to make a diagnosis clinically of lupus erythematosus of the lesion on the chin as well as of those in the mouth. The lesion on the chin is unusual because of the marked infiltration.

DR. DAVID BLOOM: The striking point in this case is the location. If this lesion were located on the nose or on the cheeks, one would immediately consider the diagnosis of lupus erythematosus. Exactly such a condition was present in a case under my observation, which I presented at a conference at the Bellevue Hospital; it has cleared under therapy with a gold preparation. I believe that this case is one of lupus erythematosus in an unusual location. This diagnosis is strengthened by the lesions in the mouth.

DR. PAUL E. BECHET: The diagnosis, I think, is lupus erythematosus, and the lesions scarcely ever vary. They consist of sharply outlined coin-shaped patches, with such marked hypertrophy that the designation hypertrophic lupus erythematosus is not amiss. The scarring is characteristic. The condition is extremely rebellious to treatment, but in my experience prolonged aurotherapy has occasionally brought about an apparent cure.

DR. HOWARD FOX: I think the cutaneous eruption is lupus erythematosus, the interesting feature being the unusual amount of infiltration. The tendency to clear in the center occurs at times in this disease. I should exclude nodular syphilid because the border does not consist of the distinct fleshy lumps described by Tilbury Fox. While the lesions in the mouth are not characteristic of lupus erythematosus, I think they are probably manifestations of that disease.

DR. DAVID L. SATENSTEIN: While I am willing to accept the diagnosis of lupus erythematosus, I do not think lichen planus should be disregarded. The present picture might have been recently assumed. The elastic tissue is perfectly normal, which would not be true if lupus erythematosus had been present for a number of years. The normal elastic tissue suggests the possibility of lichen planus. Further investigation of the case is necessary before either diagnosis can be entertained.

DR. ANTHONY C. CIPOLLARO: The oral lesions have not changed since I have been observing the patient. The large lesion on the right side of the chin is extending. The border of this lesion has persistently been erythematous, infiltrated and active. When I first saw this patient, with Drs. Rosen and Abramowitz, we considered the following diagnoses: lupus erythematosus, tertiary syphilis and a deep fungous infection. Later observations and the results of tests led us to consider the condition lupus erythematosus.

Eczema. Presented by DR. J. FRANK FRASER.

R. K., a woman aged 21, says she has had recurring attacks of an eczematoid eruption on the face. She was treated in 1937 at the Skin and Cancer Unit of the New York Post-Graduate Medical School and Hospital for acne vulgaris. She was given nine weekly roentgen ray treatments (75 r) at that time, with satisfactory results.

She is now subject to recurring attacks of an eczematoid dermatitis of the face. The condition clears when she remains at home but recurs promptly every time she returns to her work, which consists of handling cosmetic preparations. The eruption consists of vesicles, erythema and marked edema of the lids.

Patch tests with the various substances with which the patient comes in contact at the factory where she is employed have given negative results. Patch tests with other substances gave the following results: with Woodbury soap 440, erythema and edema; with Almay cold cream, an indeterminate reaction; and with boraxal and with Colgate shaving cream, 1 plus reaction.

The case is presented for etiologic diagnosis and suggestions for treatment.

DISCUSSION

DR. E. WILLIAM ABRAMOWITZ: I am reminded of a patient at the Skin and Cancer Unit of the New York Post-Graduate Medical School and Hospital who presented a similar clinical picture. The question of beginning radiodermatitis of the face came up, but there was no history of roentgen treatment. My asso-

ciates and I were afraid to use anything but wet dressings. The eruption kept up for six months or more. As the woman did not wash her face with soap and water, we had her face examined for Demodex. Large numbers of these were present and we advised the use of plenty of soap, water and white lotion. She was cured shortly after that. I advise a similar investigation in this case.

DR. ISADORE ROSEN: The cutaneous manifestations that this patient presents are typical of a dermatitis of external origin. A similar condition is seen almost daily in hospital and private practice and in most cases is refractory to treatment, on account of the difficulty in establishing the cause in spite of all tests. When a patient with such a condition is hospitalized, the eruption disappears, and when he returns to his usual environment, there is a tendency to relapse.

DR. HOWARD FOX: At present the eruption resembles seborrheic eczema.

DR. LUDWIG OULMANN: The etiologic factor in eruptions resembling seborrheic eczema is hard to establish. Besides external factors, diet and intestinal conditions have to be considered. One of the reasons that the condition improves during hospitalization is that under hospital care the patient receives a well balanced diet. As soon as he leaves the hospital, there is a relapse.

DR. PAUL E. BECHET: I might add a point of forensic interest. Some months ago a young woman (invariably a girl with a liking for new cosmetics is involved) had a papular rash on her cheeks while receiving roentgen therapy for acne. It occurred at about her sixth weekly treatment, two days after the use of some cosmetic. The dose of radiation was the conventional one for acne. She consulted her family physician, who told her that the rash was a roentgen "burn" and sent her to a roentgenologist, who made the same diagnosis. It was my good fortune that she fell into the hands of an expert dermatologist, and she was kind enough to write me that he had assured her that she had dermatitis venenata and not radiodermatitis. Had she relied entirely on the statement of her physician and of the roentgenologist, I feel sure she would have sued for malpractice.

DR. GEORGE M. LEWIS: My impression is that an external irritant is the cause of this condition. In several similar instances I have found that a waving lotion was responsible. This patient has used such a lotion. A careful check might be made to see if she has exacerbations of the dermatitis on her face when she shampoos her hair. Several shampoos are usually necessary to wash out all traces of the solution.

DR. J. FRANK FRASER: The history and character of the eruption, in my opinion, exclude the diagnosis of seborrheic eczema. Seborrhea does not come in acute attacks, accompanied with such marked edema of the eyelids, and clears promptly under the conditions reported. In answer to Dr. Lewis, as far as I know, the waving fluid has not been a factor in the causation.

Koilonychia. Presented by DR. MAURICE COSTELLO.

G. Q., a man aged 59, unemployed, has had troughlike concavity, buckling and thinning of all the finger nails for about a year. Just before the appearance of the changes in the nails he lost 18 pounds (8.2 Kg.) for some unknown reason. A differential leukocyte count was normal; five Wassermann tests were negative, and a roentgenogram of the chest showed isolated fibrotic tuberculous foci in the extreme outer part of the apex of the left lung.

DISCUSSION

DR. ANTHONY C. CIPOLLARO: It is known now that koilonychia in every case is not due to the same cause. Pseudokoilonychia associated with eczema or psoriasis is fairly common, but true koilonychia is rare. There is good reason to believe that in some cases the condition is associated with an endocrine or a metabolic disturbance or with a systemic disease such as syphilis. In an article

which I published (Koilonychia: Report of a Case and a Review of the Literature, *N. Y. State J. Med.* **30**:380 [April 1] 1930) I stated that of all the cases reported up to that time, heredity and occupation were assignable causes of the condition in 35 per cent.

DR. MAURICE COSTELLO: I have never seen this condition in a patient with pulmonary tuberculosis, although A. G. Hahn (Studies on Changes in the Finger Nails in Pulmonary Tuberculosis, *Am. Rev. Tuberc.* **20**:876 [Dec.] 1929) reported a series of cases of tuberculosis accompanied with ungual changes, which consisted of transverse and longitudinal ridging and pitting. These disturbances, which had a nutritional background, appeared simultaneously with exacerbations of the pulmonary tuberculosis.

Lupus Erythematosus (Treated by the General Radiologist). Presented by DR. DAVID BLOOM.

S. S., an Italian aged 52, was presented on Nov. 22, 1937, at the Bronx Dermatological Society with the diagnosis of sarcoid of Boeck (ARCH. DERMAT. & SYPH. **37**:861 [May] 1938). Histologic examination made since the former presentation showed lupus erythematosis.

DISCUSSION

DR. ANTHONY C. CIPOLLARO: This patient represents another reason why dermatologists rather than radiologists should treat dermatoses with roentgen rays. Dermatologists are familiar with the evolution and the involution of cutaneous lesions and their response to therapy.

DR. DAVID BLOOM: I presented this patient today in order to show the result of treatment of cutaneous disease by the general radiologist. I have observed many such cases. The general radiologist, not knowing much about the dermatologic lesion, aims by his treatment to destroy it at any cost. For lesions which are not radiosensitive and do not respond to small doses of roentgen rays or radium the general radiologist will use destructive doses. That is why radiodermatitis is seen in cases of lupus erythematosus treated by the general radiologist. Eczema which has a tendency to recur may be treated by roentgen radiation on and off for years, and radiodermatitis will result. I believe that it is about time to call attention to this fact. Something should be done, perhaps by the American Board of Radiology in conjunction with the American Board of Dermatology, in order to protect the patient against this danger of radiodermatitis.

Lupus Erythematosus Discoides with Spread of Lesions After Ultraviolet Irradiation. Presented by DR. PAUL E. BECHET.

E. D., a man aged 61, states that eleven months ago an eruption appeared on his face. Seven months ago he received a prolonged course of treatment with ultraviolet rays. This resulted in a second degree burn. Several weeks later new patches appeared over the burned areas, and these have not subsided. He presents an extensive acute discoid type of lupus erythematosus on the face, the chest, the back and the hands. He has active tuberculosis.

Dermatitis Medicamentosa (Neoarsphenamine) of Lichenoid Type. Presented by DR. HOWARD FOX.

L. S., a man aged 37, born in Greece, is presented from the dermatologic wards of the Bellevue Hospital. He contracted syphilis in 1919 and was treated at that time with about fifteen intravenous and fifteen intramuscular injections of an unknown preparation. In 1937 he suffered from hemiplegia, from which he made a fairly good recovery. Between June 26 and Oct. 12, 1937, he was given sixteen intravenous injections of neoarsphenamine and an equal number of intramuscular injections of a bismuth preparation. About three weeks after the last injection of neoarsphenamine the eruption appeared. During the intervening period he had been taking potassium iodide.

The eruption appeared first on the chest and gradually extended to the head, the upper extremities and the rest of the trunk. It attained its maximum development in about one month. According to the patient's statement, the eruption was red and itchy at the outset and gradually became pigmented. Within four or five weeks after the onset the scalp became involved.

Examination shows a tall, slim man of dark complexion who presents a generalized, symmetric and profuse eruption of the head, the trunk and the upper extremities. The lesions are mostly discrete and consist of oval and fusiform macules with fine scaling and a variable amount of deep brownish pigmentation. No scratch marks are visible. The scalp shows numerous coin-sized bald areas which are fairly smooth at present. There is no change in the texture of the scalp. The Wassermann reaction of the blood and of the spinal fluid were negative. A histologic examination of a lesion from the deltoid region showed simple inflammatory tissue and excluded the diagnosis of lichen planus.

DISCUSSION

DR. LUDWIG OULMANN: Were any examinations for arsenic made of the lichenoid lesions? There is alopecia areata, which might be due to metallic poisoning of the cervical sympathicus.

DR. J. FRANK FRASER: I recall a case of arsenical dermatitis in which the history (including the administration of potassium iodide) and the appearance of the lesions corresponded in every detail with those in this case.

DR. HOWARD FOX: I feel certain that the patient is not suffering from alopecia areata. The numerous bald areas are due to the general eruption, which has involved the scalp. Loss of hair is often extensive in certain types of arsphenamine dermatitis.

Onychomycosis; Dermatophytosis. Presented by DR. GEORGE M. LEWIS.

Neurotic Excoriations. Presented by DR. PAUL E. BECHET.

BRONX DERMATOLOGICAL SOCIETY

THEODORE ROSENTHAL, M.D., *President*

Jan. 27, 1938

HENRY SILVER, M.D., *Secretary*

A Case for Diagnosis (Discoloration of the Cheeks and Neck). Presented by DR. LEO SPIEGEL.

Miss I. R., a typist aged 32, came to the clinic of the Lenox Hill Hospital because she had noticed that the skin of her face and neck was getting darker. This discoloration had increased gradually and become much more noticeable in the past two months. The patient has psoriasis, for which she has used siroil for a number of years with indifferent results. She states that for the past two years she has used a cold cream obtained from a large department store. This preparation was sold in 1 pound (453 Gm.) tin cans. No other cosmetic except rouge, used over the same period, had been applied to the face. The cold cream was applied only to remove the rouge. No history of ingestion of drugs could be obtained.

The skin of the cheeks and the neck is a dirty grayish black. This discoloration appears in streaks which are well demarcated from the normal-appearing skin and correspond to the parts where the rouge and the cold cream have been applied. There is no discoloration of the mucous membranes.

DISCUSSION

DR. EUGENE F. KELLEY: A report of the Bureau of Investigation of the American Medical Association (*J. A. M. A.* **105**:299 [July 27] 1935) stated that siroil consists essentially of roughly 16 parts of an unbleached mineral oil, about 3 parts of water, approximately ⅕ part of glycerine, ⅒ part each of phenol and of sodium chloride, ⅒ part of a saponifiable material and a little beeswax.

DR. SAMUEL M. PECK: While this patient has a tendency toward hyperpigmentation, especially noticeable on the backs of her hands and her face, close examination of the pigmentation of the face and the hands shows it to be rather accentuated around the follicular openings. To me it seems that the pigmentation is due to some heavy metal and is similar to that seen after long use of mercury. This woman has been under treatment for psoriasis for years, and a variety of ointments have been used. This medication should be considered as a possible source of the pigmentation. Tonight I learned that siroil contains a small amount of phenol, glycerin and mineral oil. I had thought that this mixture contained some mercury or other heavy metal. This patient has used chrysarobin. I do not believe, however, that chrysarobin can leave such residual pigmentation long after it has been used. One must bear in mind, however, that in a patient with a tendency to hyperpigmentation such an inflammatory reaction can develop after the use of chrysarobin over years and that there might be a sort of autotattoo. This would be explained on the basis of pigmentation following inflammation and the dropping of pigment to the cutis—so-called incontinentia pigmenti. One of the ways of settling the question whether pigmentation by melanin or metal is present is to perform a biopsy. It would be important to determine whether this patient is a habitual user of cosmetics—especialy rouge, which often contains traces of the heavy metals.

DR. CHARLES LERNER: The distribution of the pigmentation in the form of streaks on the cheeks, as well as on the sides of the hands, suggests to me a strong possibility of berlock dermatitis. It is known that a good many creams are perfumed, some containing oil of bergamot, which in this case may well be the causal agent. The patient has used all kinds of creams, particularly on the areas that are constantly exposed to light.

DR. CHARLES WOLF: I have a feeling that two metals may be responsible—lead and mercury, for example. The rouge and the cold cream should be analyzed for these metals.

DR. MAX B. KAMPF: I have observed similar pigmentation on the face of a woman from the use of pumice for the removal of superfluous hair.

DR. LEO SPIEGEL: There is no erythema and no sign of dermatitis in the areas of this discoloration. The only cosmetics used were those stated. I should like to have the preparations analyzed, but that is an expensive procedure.

Macular Atrophy (Schwenninger and Buzzi Type). Presented by DR. MAX B. KAMPF.

M. H., a housewife aged 32, was seen at the clinic of the Fordham Hospital on May 11, 1937, because of an eruption which began a little over a year ago. It consists of various-sized macules and flat papules, the largest being about 1 cm. in diameter. The color varies from that of the normal skin to a light reddish blue. Many of the lesions seem to be depressed in the center and offer no resistance to the palpating finger.

Examination of the blood, including a differential count, the Wassermann test and a complete urinalysis, showed no abnormality.

Histologic examination showed marked atrophy of the epidermis and marked flattening of the rete pegs. In many places the malpighian layer was only two rows thick, and there was no evidence of the granular or the basal layer in many places. The cutis showed some fibrosis and atrophy. There were a few foci of lymphocytic infiltration.

Macular Atrophy (Schwenninger and Buzzi Type). Presented by DR. SAMUEL FELDMAN.

A. M., a Negress aged 21, states that for the past two years she has been noticing whitish spots on the body. The lesions do not itch or inconvenience her in any way. She never suffered from cutaneous disease prior to this outbreak.

On the trunk, the arms and the back of the neck there are about a dozen well circumscribed round or oval grayish white lesions, which range in size from that of a pinhead to that of a dime and tend to follow the lines of cleavage. The small lesions are elevated, smooth and firm. The large lesions are soft, with wrinkled surfaces, and with the firm rim of surrounding skin they suggest hernia when palpated.

The examination of the blood and the urine showed no abnormality. The sugar, the uric acid and the urea content of the blood were within normal limits. The Wassermann reaction was negative.

Histologic examination of the edge of a firm lesion showed the epidermis to be only slightly thinner than normal and the rete pegs considerably flattened. Considerable pigment was present in the basal cell layer and the epithelial cells immediately above it. There were edema of the cutis, vascular dilatation and perivascular infiltration of round cells. No plasma cells were seen. The collagenous bundles were swollen and glassy and had lost their wavy appearance. They were separated from each other by narrow spaces. There was no basophilic staining of the collagen. Elastic tissue was almost absent, a few fragments appearing only here and there in the lower stratum.

DISCUSSION

DR. HENRY SILVER: The cases of Drs. Kampf and Feldman are instances of a variety of primary macular atrophy of the skin known as anetoderma (Schwenninger and Buzzi). After a thorough analysis of all recorded cases Dr. Chargin and I suggested that anetoderma, which Schwenninger and Buzzi originally described under the name multiple benign tumor-like new growth of the skin, is nothing else than primary macular atrophy of the skin. Even in the excellent monograph of Oppenheim this entity is erroneously referred to as akin to Recklinghausen's disease. More recent works of dermatology, such as that of J. Darier and others ("Nouvelle pratique dermatologique," Paris, Masson & Cie, 1936), followed the conclusions of Dr. Chargin and me. With few exceptions, anetoderma (Schwenninger and Buzzi) is generally accepted as such.

I have often stressed the ease with which this type of anetoderma may be diagnosed in comparison with the difficulty in diagnosing the other type of primary macular atrophy, described by Jadassohn. The clinical picture of the Schwenninger-Buzzi type shows little variation. The typical lesions, usually found on sites of predilection on the trunk and the arms and often following the lines of cleavage, the ballooning and the absence of any clinically perceptible inflammatory lesions, aid the diagnosis.

The pathogenesis and the cause of primary macular atrophy are still unsettled. There is strong clinical evidence that the "sex" and pituitary hormones are important factors in the disease.

DR. LOUIS CHARGIN: It is difficult to see how a macular atrophic lesion of the Schwenninger-Buzzi type develops without a preceding clinically perceptible inflammatory lesion. Yet until proof is offered to the contrary, one must accept this type as a primary macular atrophy. Close attention should be paid in the future to the development of the initial lesions.

DR. ISIDORE M. LASHINSKY: Dr. Silver made a definite statement that one can always differentiate the Schwenninger-Buzzi type of macular atrophy from Recklinghausen's disease. In the literature one frequently encounters cases in which on clinical grounds alone it is difficult to decide whether the condition is Recklinghausen's disease or macular atrophy of the type of Schwenninger and Buzzi.

DR. HENRY SILVER: I insist that there is a great deal of difference between a macular atrophic lesion of the type of Schwenninger and Buzzi and Recklinghausen's disease. There are definite points which help in differentiating the two clinically. In cases in which differentiation is difficult, histologic examination can decide the diagnosis.

Cheilitis (Lipstick?). Presented by DR. MARION B. SULZBERGER.

R. A., a woman aged 40, presents an eruption of the lips which began in April 1937. She discontinued the use of lipstick after the onset of the eruption, but no improvement resulted. Cold cream and other lubricants were of little benefit. After a remission of a few days the patient resumed the use of the lipstick used before, and an acute exacerbation resulted. She now presents marked edema, erythema and scaling of both lips and the surrounding skin and seborrheic eczema of the scalp and of the left postaural area.

Patch tests with the patient's lipstick, hydrous wool fat, an ointment containing boric acid, precipitated sulfur, ammoniated mercury, salicylic acid, resorcinol and oil of bergamot gave positive results.

DISCUSSION

DR. LOUIS CHARGIN: With regard to cheilitis due to lipstick, I should like to be advised on the following points: 1. Where is the patch test performed? 2. What is the method by which it is performed? 3. How long after it is performed does the reaction appear? 4. What does Dr. Baer consider a "definitely positive" reaction to lipstick?

DR. R. L. BAER (by invitation): In answer to Dr. Chargin's questions, the patch test is performed on the "v" of the neck and chest and is applied for the usual period of forty-eight hours. The lipstick is smeared on and covered with cellophane. The eruption which is produced by the patch test is visible for at least two or three weeks. In cases in which the reaction is positive the border is often indurated and edematous.

DR. ADOLPH ROSTENBERG: Was the lipstick tested in toto or one ingredient at a time? I think it is important to find out the offending ingredient, as women will not deprive themselves of lipstick.

DR. FRANK E. CROSS: Why is the "v" of the neck preferred to other parts of the body for the patch test?

DR. R. L. BAER (by invitation): The patch test was performed with the lipstick in toto and not with each ingredient. Drs. M. B. Sulzberger and Joseph Goodman have reported the results of testing a number of patients with the dyes more commonly used in lipsticks (Acquired Specific Hypersensitivity to Simple Chemicals: Cheilitis, with Special Reference to Sensitivity to Lipstick, ARCH. DERMAT. & SYPH. **37**:597 [April] 1938). They found that the most offending dyes were those of the bromofluorescein group which are known to be photosensitizers. In this case I think the patient used an indelible lipstick in which there is bromofluorescein.

The "v" of the neck is selected, because frequently other parts of the body of a patient with an eruption on the lips and the eyelids do not give a positive reaction. The skin on the "v" of the neck seems to be much more similar to the skin of the face than the skin on any other part of the body.

A Case for Diagnosis (Dermatitis Venenata? Drug Eruption?). Presented by DR. ARTHUR SAYER.

D. J., a housewife aged 53, born in Russia, presents a marked redness and swelling of the upper and lower eyelids of about two months' duration. The eruption is erythematous and scaly and is strictly limited to the eyelids. The patient says she has not used cosmetics, hair tonics or irritants. She states that she has not used drugs but admits having taken ex-lax some months ago. Cutaneous tests performed by the department of allergy with foods and inhalants gave negative results and with house dust and some fungi positive results.

The patient returned to the clinic on January 25, when she presented an acute exacerbation of the eruption. The palpebral fissures were practically closed by the marked edema of the eyelids and she could barely see. The skin over the eyelids was red and scaly and in places showed slight exudation. She states that three days ago, after the ingestion of two tablets of phenobarbital, the eyelids began to itch more, and the swelling became pronounced a few hours later.

DISCUSSION

DR. ADOLPH ROSTENBERG: Cases like this are of interest, especially since clues to the cause of the condition are rare. I have seen this eruption in patients who denied the use of cosmetics. It is exceedingly resistant to therapy. If any of the members have observed cases in which the offending agent could be traced, that fact should be brought out in the discussion. I now have a woman under my observation who is suffering from dacryocystitis, and I think the flow of the tears is irritating the eyelids and causing the severe dermatitis around the eyes.

DR. SAMUEL M. PECK: If this eruption is due to the phenobarbital group, it is probably a "fixed" drug eruption. A. B. Loveman (*J. A. M. A.* **102**:97 [Jan. 13] 1934) stated that in some of the fixed types of drug eruption a patch test at the affected site will give a positive result. Therefore, it might be advisable to test the patient with an ointment containing the barbiturates. I do not know of any other case of an eczematoid eruption around the eyes due to a member of the phenobarbital group. A few years ago I had under my care a patient in whom eczema developed at the margin of the lid, owing to contact with orange peel. As part of his daily routine he extracted the juice of a great many oranges, and in brushing his eyes he came in contact with the oil from the orange peel. Patch tests on the arm did not give positive results, but stoppage of his work was followed by cure of the condition. Another patient with recurrent eczema around the eyelids gave an immediate positive reaction to orange proteins. When oranges were eliminated from his diet, the eruption cleared. When the eating of this fruit was resumed, the eruption reappeared. It is difficult to explain why this patient who had an immediate wheal reaction to orange protein should have an eczematoid eruption only around the eyes instead of the expected eruption on other parts of the body.

DR. ADOLPH ROSTENBERG JR. (by invitation): I think these cases cause a lot of unnecessary confusion because dermatologists are prone to think of the diagnosis illogically. When a condition is labeled dermatitis venenata versus dermatitis medicamentosa, there is immediate confusion, as these captions are not alternate diagnostic possibilities but overlapping ones, dermatitis venenata being a pathogenic or biologic type and dermatitis medicamentosa an etiologic type of diagnosis. To illustrate: If a person uses a hair lotion containing quinine and a vesicular eruption of the face develops, this is contact dermatitis. If that same patient takes quinine orally and a generalized erythematous eruption develops, it is spoken of as dermatitis medicamentosa. But suppose the process is reversed, the person getting a weeping eruption of the face following oral ingestion and a generalized erythematous eruption following application to the scalp. What are they now? To my mind they should be labeled exactly the same as they were before, and this is the crux of the matter: that when an eruption is mediated by an allergic sensitization, the organ which is the shock tissue—not the eliciting allergen or the route by which that allergen reaches the shock tissue—is the common factor of all eruptions falling under that diagnostic caption. It would then follow that dermatitis medicamentosa as a primary diagnostic label should fall into discard, because as used at present it conveys no precise information.

DR. HENRY SILVER: Dr. Rostenberg Jr.'s theoretic points are well taken but hardly aid in clearing the problems that these cases present. Of practical importance are the problem of discovering the offending agent and the therapeutic problem. Both are extremely difficult.

DR. ISIDORE M. LASHINSKY: May I suggest to Dr. Sayer that a plant may be responsible for the dermatitis? I recall a young woman under my care who had a

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The patient returned to the clinic on January 25, when she presented an acute exacerbation of the eruption. The palpebral fissures were practically closed by the marked edema of the eyelids and she could barely see. The skin over the eyelids was red and scaly and in places showed slight exudation. She states that three days ago, after the ingestion of two tablets of phenobarbital, the eyelids began to itch more, and the swelling became pronounced a few hours later.

DISCUSSION

DR. ADOLPH ROSTENBERG: Cases like this are of interest, especially since clues to the cause of the condition are rare. I have seen this eruption in patients who denied the use of cosmetics. It is exceedingly resistant to therapy. If any of the members have observed cases in which the offending agent could be traced, that fact should be brought out in the discussion. I now have a woman under my observation who is suffering from dacryocystitis, and I think the flow of the tears is irritating the eyelids and causing the severe dermatitis around the eyes.

DR. SAMUEL M. PECK: If this eruption is due to the phenobarbital group, it is probably a "fixed" drug eruption. A. B. Loveman (*J. A. M. A.* **102**:97 [Jan. 13] 1934) stated that in some of the fixed types of drug eruption a patch test at the affected site will give a positive result. Therefore, it might be advisable to test the patient with an ointment containing the barbiturates. I do not know of any other case of an eczematoid eruption around the eyes due to a member of the phenobarbital group. A few years ago I had under my care a patient in whom eczema developed at the margin of the lid, owing to contact with orange peel. As part of his daily routine he extracted the juice of a great many oranges, and in brushing his eyes he came in contact with the oil from the orange peel. Patch tests on the arm did not give positive results, but stoppage of his work was followed by cure of the condition. Another patient with recurrent eczema around the eyelids gave an immediate positive reaction to orange proteins. When oranges were eliminated from his diet, the eruption cleared. When the eating of this fruit was resumed, the eruption reappeared. It is difficult to explain why this patient who had an immediate wheal reaction to orange protein should have an eczematoid eruption only around the eyes instead of the expected eruption on other parts of the body.

DR. ADOLPH ROSTENBERG JR. (by invitation): I think these cases cause a lot of unnecessary confusion because dermatologists are prone to think of the diagnosis illogically. When a condition is labeled dermatitis venenata versus dermatitis medicamentosa, there is immediate confusion, as these captions are not alternate diagnostic possibilities but overlapping ones, dermatitis venenata being a pathogenic or biologic type and dermatitis medicamentosa an etiologic type of diagnosis. To illustrate: If a person uses a hair lotion containing quinine and a vesicular eruption of the face develops, this is contact dermatitis. If that same patient takes quinine orally and a generalized erythematous eruption develops, it is spoken of as dermatitis medicamentosa. But suppose the process is reversed, the person getting a weeping eruption of the face following oral ingestion and a generalized erythematous eruption following application to the scalp. What are they now? To my mind they should be labeled exactly the same as they were before, and this is the crux of the matter: that when an eruption is mediated by an allergic sensitization, the organ which is the shock tissue—not the eliciting allergen or the route by which that allergen reaches the shock tissue—is the common factor of all eruptions falling under that diagnostic caption. It would then follow that dermatitis medicamentosa as a primary diagnostic label should fall into discard, because as used at present it conveys no precise information.

DR. HENRY SILVER: Dr. Rostenberg Jr.'s theoretic points are well taken but hardly aid in clearing the problems that these cases present. Of practical importance are the problem of discovering the offending agent and the therapeutic problem. Both are extremely difficult.

DR. ISIDORE M. LASHINSKY: May I suggest to Dr. Sayer that a plant may be responsible for the dermatitis? I recall a young woman under my care who had a

similar eruption of the eyelids. After eliminating a number of possibilities, such as cosmetics and furs, I found her sensitive to the flowers (among which was primrose) presented to her by her husband on her birthday. In spite of the fact that the flowers were immediately discarded and a bland ointment applied, the eruption persisted for about two months.

DR. FRANK E. CROSS: Dr. Lashinsky's suggestion of plant dermatitis brings to my mind a patient with a similar eruption who volunteered the information that each time he went to the Bronx Park Botanical Gardens an eruption appeared about his eyes.

DR. ARTHUR SAYER: I shall perform patch tests with phenobarbital ointment, as suggested by Dr. Peck, and with cold creams and other cosmetics.

Lupus Erythematosus Treated with a Bismuth Preparation. Presented by DR. ARTHUR SAYER.

P. B., a housewife aged 38, born in Rumania, presented herself at the clinic of the Mount Sinai Hospital on Sept. 22, 1936, because of subacute discoid lupus erythematosus of the face.

The patient was given intramuscular injections of bismuth subsalicylate once weekly for three months. The eruption on the face improved rapidly at first, and the edematous character of the lesions subsided, leaving only moderate redness and slight scaliness.

She returned to the clinic on Nov. 2, 1937, because of a flare-up of the eruption, which clinically was essentially the same as in September 1936. She was given weekly injections of bismuth subsalicylate intramuscularly, and the condition again responded to the treatment. At present the lesion on the right ear and on the right lower eyelid have entirely healed, and the skin shows only a faint redness. No scaliness or atrophy can be seen in these locations. The lesion on the right side of the upper lip is greatly improved. The patient is presented to show good results from bismuth therapy.

DISCUSSION

DR. CHARLES A. GREENHOUSE: I have followed the treatment of lupus erythematosus with bismuth preparations ever since R. M. B. MacKenna (The Possibilities of Bismuth Therapy in the Treatment of Cutaneous Diseases, *Brit. J. Dermat.* **43**:565 [Nov.] 1931) introduced it. I can definitely state that I have not seen a single cure with this therapy alone, in spite of the enthusiastic reports of other observers. I am firmly convinced that the results of bismuth and of gold in the treatment of lupus erythematosus do not warrant the claims that are made.

DR. CHARLES LERNER: I agree with Dr. Greenhouse that bismuth is practically useless in the treatment of lupus erythematosus. However, I do not share his opinion regarding the efficacy of gold therapy.

DR. SAMUEL FELDMAN: The members will recall the patient with the same type of lupus erythematosus whom I presented last month. I hesitated to give a gold compound and substituted a bismuth preparation. There was a rather severe flare-up of the eruption, and administration of the drug was discontinued and no other treatment except general care given. The facial lesions, which showed marked degeneration of elastic tissue, have almost disappeared, without leaving clinically evident atrophy.

DR. SAMUEL M. PECK: I do not believe that at this late date it is necessary to discuss the value of injections of a gold preparation in the treatment of chronic discoid types of lupus erythematosus, because I think that the observations of a great many competent physicians, as well as the experience of the last ten years, have fairly proved its value. Dr. Rosen is one of the enthusiastic supporters of bismuth therapy for this disease. I must confess that previously I was rather skeptical about its value. However, Dr. Rosen has taught me that to obtain good results with a bismuth preparation a great many injections must be given. He

advises courses of from twelve to fifteen injections with intervals of rest. In a number of instances as many as three or four courses had to be given before a satisfactory result was obtained. My experience with bismuth ointment has been disappointing.

DR. LEO SPIEGEL: In a number of cases I have obtained good results with a bismuth preparation given every five days. In some decided improvement is observed after even a few injections. With regard to the use of gold compounds in the treatment of this disease, I believe the preparation of gold used makes a difference.

DR. LOUIS CHARGIN: There is ample proof, as judged by the literature, that in approximately 30 per cent of cases lupus erythematosus improves or is cured by gold therapy. Of course recurrences take place. In those cases in which gold therapy fails, I think bismuth therapy should be given a trial. I am not wholly convinced that bismuth therapy is superior. In the cases in which I have used bismuth preparations alone, although they are not many, there were fair results. I think it is best to treat lupus erythematosus with first a gold and then a bismuth preparation, if necessary. Originally lupus erythematosus was treated with large doses of gold preparations and then, because of toxic manifestations, the pendulum swung to the other extreme and small doses were substituted. In my opinion one should begin with a small dose, about 10 mg. of gold, and subsequently increase the dose to 50 mg. With this method one gets better results.

DR. HENRY SILVER: It must be admitted that good results are obtained from either gold or bismuth therapy, and such skepticism as that expressed by some of the members is not warranted. In presenting a case of lupus erythematosus in a child before this society in February 1937 (ARCH. DERMAT. & SYPH. **36**:667 [Sept.] 1937), I discussed bismuth therapy as carried out at the clinic of the Mount Sinai Hospital. I pointed out that treatment with gold compounds is frequently contraindicated for children and bismuth therapy, as suggested by Dr. Rosen, is resorted to. I combine this treatment with a salt-free diet, and the results, while not spectacular, are satisfactory.

DR. FRANK E. CROSS: I do not recall many reactions following the use of sodium gold thiosulfate. I think Dr. Greenhouse is a little too severe in his opinion regarding the use of preparations of bismuth and gold in the treatment of lupus erythematosus. Naturally there are cases in which the condition will fail to respond to either remedy or both.

DR. ADOLPH ROSTENBERG: When the use of gold compounds was introduced, remarkable results were reported. Now there are many failures. In my experience treatment with bismuth is certainly inferior to that with gold. It is difficult to draw definite conclusions with regard to any form of therapy, because lupus erythematosus is as capricious in its course as psoriasis.

DR. ARTHUR SAYER: The reason that a gold preparation was not given was that the disease was of subacute type. This patient shows a good therapeutic response to bismuth. There is at present about 90 per cent improvement, which I attribute to the persistent treatment with bismuth. I must admit, however, that I have tried bismuth therapy in about a dozen other cases with indifferent results.

Dermatitis Exfoliativa in a Case of Untreated Psoriasis. Presented by DR. SAMUEL FELDMAN.

S. F., a housewife aged 48, was admitted to the Morrisania City Hospital on Dec. 20, 1937, because of a severe generalized eruption on the body of six weeks' duration. The patient states that she has had psoriasis of the scalp, the elbows and the knees for the past thirty years. The only local medicament she ever used was petrolatum, and she stated definitely that she had taken no drugs at any time. About six weeks prior to admission she noticed redness and itching of the neck, the shoulders and the arms, followed by the eruption, which gradually spread downward and involved the entire body. The skin is uniformly red,

thickened and covered with platelike coherent scales, which exfoliate in large masses. There is considerable itching. The patient is highly sensitive and frequently complains of a chilly sensation.

The examination of the blood and the urine, the chemical examination of the blood and the Wassermann test showed no abnormality. No arsenic was found in the urine on several examinations.

DISCUSSION

DR. CHARLES WOLF: Statements are made that roentgen therapy in psoriasis should be condemned because exfoliating dermatitis follows. However, I have never seen that occur.

DR. MAX BERKOVSKY: One has to be cautious in the choice of treatment in cases of active psoriasis, as the following recent experience demonstrates: In 2 cases extensive psoriasis was treated by application of a 5 per cent ointment of tar, followed by exposure to ultraviolet radiation. One patient's condition responded well, and the eruption disappeared. In the other case severe erythroderma developed and involved the entire body. Apparently in the second case the disease was in an active phase.

DR. SAMUEL M. PECK: The use of chrysarobin and of roentgen rays are well recognized forms of treatment for psoriasis. One cannot condemn the latter because of the ill effects obtained by some therapeutists.

DR. SAMUEL FELDMAN: With regard to whether injury or irritation is capable of localizing the lesions at the point of irritation, I should like to cite J. Jadassohn's experiment. He exposed to roentgen rays an area of a patient sensitive to a drug and then administered that drug by mouth. An eruption developed in the area treated with the rays and subsequently became generalized.

Acne Varioliformis, Successfully Treated with Staphylococcus Toxoid.
Presented by DR. MARION B. SULZBERGER.

J. M., a man aged 38, presents a papulopustular eruption on the scalp and the cheeks which began in 1932 and with few remissions has persisted to date. Many of the papulopustules and lesions of the scalp have necrotic centers. Many pitted scars are scattered over the scalp and the face. The patient was treated with staphylococcus toxoid-Lederle N. N. R. He received nine injections of the dilution no. 1 containing 100 skin necrotizing units per cubic centimeter, the dose varying from 0.1 to 0.5 cc. No local treatment was given, and all previous therapy had been ineffective. Marked improvement followed, although a few lesions still appear at times.

DISCUSSION

DR. R. L. BAER (by invitation): The results obtained have been fairly uniform in my cases. First the patient is tested with 0.02 cc. of the dilution no. 2 of the staphylococcus toxoid-Lederle N. N. R. containing 1,000 skin necrotizing units per cubic centimeter, and afterward the proper dose is determined according to the reaction. The initial dose is then usually 0.1 cc. of dilution no. 1 and is gradually increased about 0.1 cc. for each injection, once or twice weekly. Then the procedure is guided by the patient's reactions. The number of general reactions is small. After the dose has reached 1 cc. of dilution no. 1, 0.1 cc. of dilution no. 2 is given. It is impossible to predict in advance the number of injections necessary in a particular case. In some cases the condition clears after six injections; in others many more are necessary. I made an interesting observation on a patient who had acne varioliformis and furunculosis. The acne varioliformis cleared rapidly after about eight injections, while the furunculosis did not respond as well. In almost all the cases in which injections of toxoid have been given, local applications, in particular ammoniated mercury ointment, had been given for years previously, without any benefit. Some patients have remained well for two years.

DR. LOUIS CHARGIN: Long experience teaches that acne varioliformis responds to a variety of remedies. In some cases it fails to respond to any form of therapy. All that can be said about the treatment with toxoid is that it is just another method of treating acne varioliformis.

DR. ADOLPH ROSTENBERG: I have never seen a failure from the use of ammoniated mercury ointment. The eruption invariably clears, but of course occasionally recurs.

DR. FRANK E. CROSS: Ammoniated mercury clears these lesions, but they recur, and that is the reason why one should search for some remedy that will give permanent results. The use of toxoid may be a step in the right direction.

Lupus Vulgaris and Secondary Syphilis. Presented by DR. FRANK E. CROSS.

Generalized Bromoderma. Presented by DR. SAMUEL FELDMAN.

Syphilitic Leukoplakia of the Tongue with Smooth Atrophy. Presented by DR. G. D. ASTRACHAN.

A Case for Diagnosis (Folliculitis Decalvans? Acne Varioliformis?). Presented by DR. MARION B. SULZBERGER.

SAMUEL M. PECK, M.D., *Vice President, Presiding*

Feb. 24, 1938

HENRY SILVER, M.D., *Secretary*

Seborrheic Keratoses (Carotenoid Pigmentation?). Presented by DR. LEO SPIEGEL.

L. K., a married woman aged 75, born in Germany and residing for over fifty years in this country, came to the clinic of the Lenox Hill Hospital because of itching of the back and the arms.

On the back are numerous discrete slightly raised scaly noninflammatory papules varying in size from that of a pea to that of a dime. On the abdomen the lesions are similar, except that they appear in lines as if they had been scratched, and most of them are light canary yellow. The palms show a slight yellowish discoloration. The patient states that for the past twelve years because of gastric disease she has eaten daily a dish of three or four carrots. No laboratory work-up has been possible.

DISCUSSION

DR. FRANK E. CROSS: I feel that the carrots did not influence the color of the lesions. The fact that the woman has a fair skin and blond hair might account for the light color of the lesions.

DR. CHARLES WOLF: A point of importance is whether the lesions in this case are senile or seborrheic keratoses. On clinical grounds alone it is difficult to differentiate the two types, and from the therapeutic standpoint it is important that they be differentiated. One is a precursor of malignant growth and the other is not. In this case the lesions are elevated and hard. I, therefore, favor the diagnosis of senile keratoses.

DR. LOUIS CHARGIN: I agree with the diagnosis of seborrheic keratosis. Many of the lesions in this disease are yellowish. Whether the carrots have accentuated the color is difficult to say. A point in differential diagnosis between senile and seborrheic keratosis is that in the former disease there are few lesions. The lesions in this case are numerous and by character as well suggest seborrheic warts, a process which is not, as a rule, malignant.

DR. DAVID L. SATENSTEIN: These lesions are definitely seborrheic keratoses. The yellowish color is not uncommon in this dermatosis; it might be due to degeneration of the connective tissue. I think that it rests with the presenter to show by chemical analysis that the coloring is due to the ingestion of carrots.

With regard to Dr. Chargin's statement, in a fair percentage of cases the lesions become malignant, although the malignancy is of a low grade and develops slowly. Dr. Chargin is correct when he states that in case of senile keratosis there are as a rule only a few lesions; they are usually on the hands and the face and are seen in association with sequelae of actinic radiation.

DR. ARTHUR SAYER: A simple blood test can determine the presence of carotenemia. About 5 cc. of blood is withdrawn from a vein into a test tube and allowed to coagulate. If carotenemia is present, the supernatant blood serum shows a distinct yellowish or orange color.

A Case for Diagnosis (Mycosis Fungoides?). Presented by DR. DAVID BLOOM.

This patient was presented at the January meeting of the Manhattan Dermatologic Society (ARCH. DERMAT. & SYPH. **37**:918 [May] 1938) and of the New York Dermatological Society.

Since the last presentation, violaceous slightly infiltrated irregularly shaped plaques varying in size from that of a dime to that of a 50 cent piece have developed. Some of the plaques disappear spontaneously but soon reappear. The lesions are nonpruritic.

Examination of a lesion for fat and sternal puncture showed no abnormality.

DISCUSSION

DR. DAVID BLOOM: Drs. Peck and Satenstein have examined the slides this evening and ventured the diagnosis of Kaposi's sarcoma.

DR. DAVID L. SATENSTEIN: G. M. MacKee and A. C. Cipollaro, in an excellent study (*Am. J. Cancer* **26**:1 [Jan.] 1936) differentiated five stages of the disease. One may find more than one of the stages in a given case. This is true in the case presented. I find no difficulty in this case, from the lesions and the slides, in making a diagnosis of Kaposi's sarcoma.

DR. ISIDORE M. LASHINSKY: The short duration of the disease speaks against the diagnosis of Kaposi's sarcoma. The histologic features of the case conform to the fourth, or angiomatous, stage described by MacKee and Cipollaro. Such a process would necessarily take much longer to develop.

DR. DAVID BLOOM: Of all the diagnoses suggested in this case, namely, xanthoma, mycosis fungoides and finally Kaposi's sarcoma, the last is most acceptable pathologically and clinically.

Moniliasis of the Skin and the Mucous Membrane of the Mouth. Presented by DR. SAMUEL FELDMAN.

J. B., a housewife aged 48, came to the clinic of the Morrisania City Hospital on Jan. 24, 1938, because of a burning sensation in the mouth and on the tongue of about one year's duration. The tongue frequently appears coated.

The tongue is smooth and shiny and covered in areas with a grayish white membrane which can be removed with difficulty. The angles of the mouth are scaly and fissured. Under the right breast is a well circumscribed erythematous area, covered with crusts and vesicles. Cultures of material from the tongue, the angles of the mouth and the breast showed budding yeasts and short septate myceliums.

Generalized Moniliasis and Moniliids. Presented by DR. MARION B. SULZBERGER.

M. S., a patient at the Montefiore Hospital for Chronic Diseases, was presented before this society on April 26, 1934 (ARCH. DERMAT. & SYPH. **30**:741 [Nov.] 1934).

During her last period of hospitalization (from January 1936 to January 1938) the patient showed impetiginous crusty and scaly lesions over the entire scalp, impetiginous lesions on the face, blepharitis, eczematous lesions behind the ears and inside the nose, chronic otitis of the right ear, rhinitis, parotitis after iodine therapy, a weeping dermatitis of the umbilicus, a discharge from the vagina and paronychia of the hands and the feet. She had glomerulonephritis for many years, an old infiltration of the right lung, anemia and polynucleosis. Monilia albicans was found this time only in cultures of material from the mouth and the stomach. The reaction to oidiomycin was positive.

No pronounced effect was obtained with various external and internal medications, including endocrine preparations (anterior pituitary extract and estradiol benzoate). The first real improvement was seen on the scalp, after the use of Arning's tincture of iodine, but other affected areas remained unchanged. After the introduction of the diet given by Miller and Barker for sprue, which has a high protein and a high vitamin content but is poor in carbohydrates and fat, and the administration of liver extract intramuscularly, general improvement began. The discharge from the ear and from the vagina disappeared; the umbilicus became dry and the face clear. There was only partial improvement of the paronychia, and therefore roentgen treatment was given. The nasal drip, the anemia and the chronic glomerulonephritis are still present. The diet and the liver therapy are being continued.

DISCUSSION ON PAPERS OF DR. FELDMAN AND DR. SULZBERGER

DR. ADOLPH ROSTENBERG: Are the pictures in the case of Dr. Feldman and in that of Dr. Sulzberger similar? In my opinion they differ considerably.

DR. SAMUEL FELDMAN: There are so many types of moniliid that it is difficult to differentiate them from similar eruptions not due to fungi. I have seen moniliasis of the webs of the fingers or an insignificant lesion in the groin suddenly become generalized, the original lesion showing Monilia while the generalized eruption does not. The moniliid may clear up while the original infection remains uninfluenced by treatment. I do not see why the condition in Dr. Sulzberger's case differs from that in my case. It is possible that the infection in his case is located in the folds and crypts of the rectum, from which it is usually difficult to recover Monilia.

DR. SAMUEL M. PECK: I should like to offer some therapeutic suggestions which might be helpful in Dr. Sulzberger's case. I have observed a number of cases at the Mount Sinai Hospital in which a similar condition responded rather well to chlorhydroxyquinoline. It is important to start medication with a one-fourth strength ointment to which has been added from 0.5 to 1 per cent sulfur. The percentage of these ingredients is then gradually increased. Now and then intolerance to chlorhydroxyquinoline develops, and the drug has to be omitted. The important point to remember is that some form of antiseptic therapy has to be given, and especially one which causes no dermatitis. It seems that when there is a discharge from such an area as the vagina, or even from the aural canal, the area plays a definite role as a focus of infection.

DR. SAMUEL FELDMAN: Can any one suggest a therapeutic procedure to control the eruption of the tongue? The skin readily stands irritating ointments, but the tongue does not.

DR. MARION B. SULZBERGER: Moniliasis or thrush of the buccal mucosa may be cleared relatively easily, but has a tendency to recur. Washing with sodium borate and painting with methylrosaniline are usually effective in cleaning lesions of the mucous membrane.

DR. ARTHUR SAYER: The case which J. G. Hopkins recorded about six years ago (ARCH. DERMAT. & SYPH. **25**:599 [April] 1932) ultimately came under my observation. Dr. Hopkins stressed the importance of a strict dietary regimen, particularly a high protein diet. During the time the boy was under my care Dr. Hopkins' diet could not be followed; yet the patient responded well to local therapy only.

DR. WILBERT SACHS: These patients get well without therapy and sometimes do not get well with therapy. Often the disease lasts a long time, regardless of therapy. The 2 patients that I presented six months or a year ago (ARCH. DERMAT. & SYPH. **28**:124 [July] 1933; **30**:308 [Aug.] 1934) have been presented a number of times before various societies; there has not been much change in the eruption.

A Case for Diagnosis (Toxic Dermatitis? Pityriasis Rosea?). Presented by DR. H. VICTOR MENDELSOHN (by invitation).

D. B., a Negress aged 20, presents a nonpruritic generalized eruption of one month's duration. It consists of two types of lesions. On the backs of the feet, the legs, the arms and the forearms are discrete flattened conical papules covered by thicker and more adherent scales, while on the major part of the trunk are roundish and oval effluorescences strongly suggesting pityriasis rosea. The mucous membranes are normal. The face is free from eruption. The Wassermann reaction was negative.

DISCUSSION

DR. DAVID L. SATENSTEIN: The clinical features in this case suggest parapsoriasis to me.

DR. VAN ALSTYNE H. CORNELL: I think this case may be one of pityriasis rosea, although the appearance and the distribution are not characteristic. The suggestion of parapsoriasis might be entertained.

DR. LOUIS CHARGIN: Unless one sees a typical picture in a Negro, it is difficult to make a diagnosis of pityriasis rosea. The diagnosis I should think of last is parapsoriasis. There are no features suggesting that disease. The scaling that is observed in parapsoriasis is fine and sparse; the lesions are superficial, and the location of the eruption in this case speaks against this diagnosis.

NOTE.—Histologic examination of a papule from the leg and of a patchy lesion from the thigh showed essentially the same changes. There were vascular dilatation, edema and a demarcated lymphocytic infiltration in the corium. The epidermis showed acanthosis with varying degrees of intercellular and intracellular edema and a patchy parakeratosis. The granular layer was atrophic in parts. The entire picture was that of a subacute exudative inflammation.

A Case for Diagnosis (Prurigo? Dermatitis Factitia?). Presented by DR. SAMUEL FELDMAN.

F. L., a Jewish housewife aged 49, was operated on eight months ago at the Kings County Hospital, Brooklyn, for an infected gallbladder. One week after the operation severe itching developed, and an eruption appeared on the back and spread to the lower extremities in about two weeks. The eruption persisted, and the itching remained unabated. On Feb. 8, 1938, the patient was admitted to the Morrisania City Hospital with erysipelas, which subsided in one week under treatment with sulfanilamide. The original eruption was not entirely masked by the erysipelas.

The eruption consists of rounded lesions ranging in size from that of a pea to that of a penny and in some locations even larger. Most of the lesions are hard to the touch, and the surface is rough and horny. A large number of them are pigmented at the periphery, giving the appearance of old scars. During the patient's stay in the hospital several new lesions appeared. They are elevated bluish red nodules, which are evidently pruriginous, as the patient rapidly scratches off the tops. The lesions are numerous on the back and sparsely distributed over the chest, the abdomen and the lower extremities. The patient suffers from mild diabetes and has been treated with insulin. The first treatment with that drug was given about three weeks after the appearance of the eruption.

The Wassermann reaction was positive. The sugar content of the blood was 150 mg. per hundred cubic centimeters. Blood cultures for streptococci were negative. Agglutination tests for dysentery, typhoid and typhus gave negative results. The hemoglobin content and the red and the white blood cell count were normal.

The histologic examination of a section from a verrucous and scarlike lesion of the back showed fairly marked hyperkeratosis. There was a slight diminution in the staining quality of the rete, and the rete pegs were in areas elongated and thickened. Most of the papillae were normal; a few were elongated. There were dilatation of the blood vessels and a slight perivascular infiltration. The collagenous bundles were swollen, stained poorly and were separated from one another by wide spaces, indicating both interstitial and parenchymatous edema. The elastic tissue was not diminished, but there was a small amount of fractioning and clumping.

A Case for Diagnosis (Prurigo Nodularis?). Presented by DR. FRANK E. CROSS.

M. A., a woman aged 50, born in the United States, presents an eruption of two years' duration. There are hyperkeratotic nodules about 1 cm. in diameter on the sides of both legs and a confluent large plaque the size of a palm on the anterior surface of the middle third of each leg. There are excoriated papules on the outer and anterior surfaces of the upper extremities. The itching is severe. Laboratory tests gave essentially normal results.

DISCUSSION

DR. CHARLES WOLF: In Dr. Feldman's case the factitious element can be easily eliminated because of the large number of lesions. If these lesions were artefacts, the woman would be exhausted from overwork. I think the eruption is polymorphous, and pending further investigation I suggest Duhring's disease. Dr. Cross's case I regard as an instance of lichen planus.

DR. CHARLES LERNER: I do not like to see Dr. Feldman's patient accused of being neurotic and producing the lesions. Many of them are almost inaccessible. Furthermore, all the lesions are practically uniform morphologically. My impression is that the patient is suffering from a metabolic disturbance, possibly diabetes, with an accompanying dermatosis.

In Dr. Cross's case I observed that most of the lesions were lichenoid but did not see a single characteristic lesion of lichen planus. Neurodermatitis, therefore, suggests itself.

DR. SAMUEL FELDMAN: There is a possibility that the mild diabetic condition (150 mg. of sugar per hundred cubic centimeters of blood) may be a contributing factor.

DR. FRANK E. CROSS: It is strange that there are no lesions in my case except on the upper and lower extremities. I think the diagnosis of prurigo nodularis should be entertained, although neurodermatitis is acceptable.

A Case for Diagnosis (Disseminated Superficial Lupus Erythematosus?). Presented by DR. MAURICE UMANSKY.

S. G., a painter aged 44, has lesions on the face which have been present for the last four years. The eruption flares up periodically every three or four months. In the intervals the lesions fade but never disappear. The eruption on the back escaped his attention.

On the face, mostly on the right cheek, are disseminated lesions the size of a pea, slightly elevated and purple. No atrophy and no dilated follicles are visible. There is hardly any scaling. On the back, in the region of the dorsal vertebrae, is a group of edematous pinkish nonscaly papules. On the scalp is a hairless atrophic patch the size of a 25 cent piece.

Histologic examination of a lesion from the face showed changes suggestive of lupus erythematosus. Sections from a lesion of the back did not show any characteristic features. The examination of the urine showed no abnormality. The Wassermann reaction was negative and a tuberculin test with a dilution of 1:100,000 gave negative results. The patient is suffering from chronic bronchitis. Examination of the sputum for tubercle bacilli gave negative results.

DISCUSSION

DR. LOUIS CHARGIN: I have seen this patient on several occasions, and I subscribe to a diagnosis of subacute superficial disseminated lupus erythematosus. I must say that the case is not a typical one of lupus erythematosus, but on clinical grounds that diagnosis has to be considered. Another possible diagnosis is an unusual form of multiform erythema. I do not think that this case will terminate as one of acute lupus erythematosus.

DR. DAVID L. SATENSTEIN: When I looked at the histologic section the first time, I asked whether the patient was still alive. There was no evidence of the fixed type of lupus erythematosus. I saw necrosis of the vessel walls and some capillary changes. From the clinical appearance and the histologic picture I should place this condition in the group of disseminated lupus erythematosus. Clinically it is the subacute type, but histologically it is of the acute variety.

DR. SAMUEL M. PECK: The specimen of tissue removed from the back did not suggest lupus erythematosus histologically; on the other hand, the lesion from the face certainly fit in with the subacute variety of the disease.

A Case for Diagnosis (Granuloma Annulare? Sarcoidosis?). Presented by DR. MAURICE UMANSKY.

S. R., a girl aged 7½ years, presents a disseminated eruption on the upper and lower extremities of four weeks' duration. The eruption consists of lesions the size of a dime or a nickel and made up of small white discrete papules. The papules are best seen when the skin is stretched. The centers of the lesions are not clear. The patches feel solid and reach a considerable depth in the skin. They are reddish; some show scaling, and there is a ringlike linear and irregular arrangement. Isolated papules the size of a pea are of more recent origin. Aside from the common diseases of childhood and occasional swelling of the glands, the patient's past history is essentially irrelevant.

The tuberculin test with a dilution of 1:100,000 and of 1:1,000 gave negative results. Roentgen examination of the chest showed a linear shadow between the lobes of one lung, which was interpreted as a possible indication of old pleuritic adhesions. Roentgenograms of the bones of the hands showed no abnormalities.

DISCUSSION

DR. CHARLES LERNER: Clinically I could not see the slightest suggestion of atrophy. I therefore hesitate to make a diagnosis of granuloma annulare. In my opinion, the condition is erythema multiforme caused by a drug.

DR. DAVID L. SATENSTEIN: Because of the sharply marginated erythematous elevated lesions, I should suggest the diagnosis of erythema elevatum diutinum. Pathologically this disease and granuloma annulare are somewhat similar.

DR. MARION B. SULZBERGER: Clinically the lesions seem atypical for granuloma annulare. However, one encounters not a few instances of atypical granuloma annulare, and the failure of these lesions to clear in the center is not enough to rule out this diagnosis. The papules at the border of the lesions and the consistency of the lesions suggest granuloma annulare. I think granuloma annulare is a more likely diagnosis than sarcoidosis. In the latter disease it is unusual for so many lesions to appear on the extremities in such a short time. However, when one sees any atypical eruption, one must consider a drug eruption. Furthermore, the child had a cold six days before the appearance of the lesions, and a preparation containing acetophenetidin and acetylsalicylic acid was prescribed. The possibility of an eruption due to these drugs must be considered.

DR. LOUIS CHARGIN: Dr. Sulzberger's points are well taken. If there were lesions on the fingers alone, I think the majority of the members would agree with the diagnosis of granuloma annulare. The difficulty in this case lies with the lesions on the other parts of the body, which are not characteristic of this disease.

The lesions in granuloma annulare are more or less alike; they form rings with borders of white papules. This condition may be a drug eruption; any drug of the phenobarbital group could produce such an eruption. I agree that sarcoidosis cannot be definitely established as the diagnosis in this case but is a possibility.

DR. CHARLES WOLF: The ingredients of the powders given to this patient fairly eliminate the likelihood of a drug eruption because these drugs, as far as I know, do not produce this type of eruption. This child has typical granuloma annulare on one of the fingers, near the interdigital space. Over a year ago I presented before this society (ARCH. DERMAT. & SYPH. **36**:444 [Aug.] 1937) a woman who had a similar extensive eruption. A diagnosis of granuloma annulare was accepted and proved histologically.

Lupus Erythematosus. Presented by DR. ADOLPH ROSTENBERG.

This patient, a Negress aged 43, states that one and one-half years ago, during the height of the summer, an erythematous scaly patch appeared on the nose and that gradually similar lesions developed on various parts of the face, the scalp and the ears; lesions appeared over the zygomatic areas three months ago. The Wassermann reaction was negative. The patient has had no treatment.

A symmetric eruption on the upper and the lower lip, both cheeks and the scalp, within and behind both ears and on the nose, consists of irregularly annular and papular lesions varying in diameter from a few millimeters to 3 cm. The older lesions present secondary changes, consisting of slight desquamation, moderate atrophy and deep pigmentation; the recent lesions are erythematous and scaly. On the upper lip the lesions have become confluent to form a more or less continuous patch from a distance resembling a mustache. There is a total loss of hair on the frontal part of the scalp.

DISCUSSION

DR. DAVID BLOOM: Pigmentation in white persons with lupus erythematosus is not rare, particularly with the disseminated chronic type. In all the cases of lupus erythematosus in Negroes which I have observed there has been marked pigmentation.

DR. ARTHUR SAYER: I hesitate to offer the diagnosis of lichen planus, as it might sound a little far fetched. I realize that the location of this eruption and the symmetry speak in favor of lupus erythematosus. However, the scalp shows definite follicular keratotic papules, which are unusual for lupus erythematosus. I should like to recall the case of lichen planus which Dr. Samuel Feldman presented before this society a few years ago (ARCH. DERMAT. & SYPH. **32**:514 [Sept.] 1935) in which the lichen planus was pronounced on the scalp. There is a close resemblance in this case. I believe that the intense pigmentation which is a marked characteristic of lichen planus and an unusual manifestation in lupus erythematosus is a further point in favor of lichen planus. A study of sections from several lesions will greatly aid in the diagnosis.

DR. FRANK E. CROSS: I believe this case is one of lupus erythematosus on a seborrheic background, which accounts for the symmetry and the distribution of the eruption.

DR. H. VICTOR MENDELSOHN (by invitation): The patient is interesting from several standpoints: 1. The scars resulting from such lesions in white persons are of a dull whitish tint, never pigmented, and in this patient most of the areas are hyperpigmented. This undoubtedly is due to the tendency in the Negro for pigmentation to develop after involution of many cutaneous lesions. 2. Lupus erythematosus in the Negro is said to be infrequent. In my experience, however, it occurs just as frequently as in the white race. 3. The strikingly symmetric distribution of the lesions, which is the rule in this disease, is accentuated in this patient. The lesions on the corresponding areas of the upper lip and the scalp appear as if tattooed or painted on.

Complete Albinism. Presented by Dr. Max Berkovsky.

A. L., a Puerto Rican aged 13, is a patient at the Metropolitan Hospital. He is an orphan and has Negro ancestry. His mentality is slightly below par; he is in the 6B grade in school. The patient is a well developed and nourished boy. The hair on the scalp, in the axillas and in the pubic region is completely white and silky. The skin of the entire body is white, with a slight pinkish hue. The eyes are pink and show marked nystagmus.

Lymphogranuloma Venereum; Chancroid; Syphilis. Presented by Dr. Adolph Rostenberg.

L. J., a Negro aged 35, presented himself on March 30, 1936, because in the right inguinal region he had a gland the size of a plum which was not tender and did not fluctuate. There was no penile lesion. The patient states that he had a gonorrheal infection several years ago. The Wassermann reaction was 2 plus and the Kahn reaction 1 plus. Antisyphilitic treatment was instituted on April 1, 1936. On May 4, 1936, the bubo broke down and healed under treatment.

On Feb. 4, 1938, the patient returned and showed three small punched-out ulcerations on the foreskin, each the size of a pea. Examination for spirochetes and for Ducrey bacilli gave negative results. The Wassermann and the Kahn reaction were negative. The gland on the right side was enlarged and fluctuating, and when it was incised a great amount of pus was evacuated. The Frei test gave a positive result. The patient's wife had numerous papules on the vulva, and her Wassermann reaction was 4 plus.

DISCUSSION

Dr. David Bloom: Association of several venereal diseases with lymphogranuloma venereum is not unusual.

Lupus Vulgaris. Presented by Dr. Frank E. Cross.

Basal Cell Epithelioma. Presented by Dr. Max Berkovsky.

A Case for Diagnosis (Lupus Erythematosus? Psoriasis?). Presented by Dr. Charles Wolf.

Morphea. Presented by Dr. George J. Spinner.

CLEVELAND DERMATOLOGICAL SOCIETY

Claude Bazil Norris, M.D., *President*

Nov. 18, 1937

C. L. Cummer, M.D., *Secretary*

J. R. Driver, M.D., *Reporter*

Atopic Eczema and Asthma with Bilateral Cataract. Presented by Dr. W. F. Schwartz (from the Department of Dermatology and Syphilology, Cleveland City Hospital).

E. W., a woman aged 23, has had asthma since the age of 13 and generalized eczema for the past five years. She received one roentgen treatment, which included the face, shortly after the eczema started. For the past three years she has noted that her vision was failing, particularly in the right eye.

Examination of the right eye reveals complete opacity of the lens, with total blindness. There is subcapsular opacity in the left eye, which causes markedly diminished vision.

There is generalized chronic atopic eczema.

Gastric analysis revealed achlorhydria. The differential blood count was normal with the exception of 20 per cent eosinophils. The basal metabolic rate was —5 per cent. The calcium content of the blood was 10.2 mg. and the phosphorus content 2.9 mg. per hundred cubic centimeters.

DISCUSSION

DR. I. L. SCHONBERG: This case demonstrates one of the unfortunate complications of atopic eczema, probably due to some exudative change in the lens around the eye. It is a complication that often leads to medicolegal difficulty with patients who have received roentgen treatment, for an attempt is made to blame the cataract on the therapy. Several cases have been reported in ophthalmologic journals in which this condition arose in a patient to whom roentgen treatment had never been given. This patient received only one roentgen treatment to the face. I know of no case of cataract that has been definitely shown to be caused by roentgen rays.

DR. H. G. MISKJIAN: I think it should be clearly understood that in no case has the condition been proved to be due to roentgen radiation. Two or three years ago there was an extensive discussion on this subject, and numerous cases were brought up.

DR. J. EDGAR FISHER: I should attribute the condition to the same factor that is causing the eczema.

DR. E. W. NETHERTON: Dr. L. A. Brunsting, of the Mayo Clinic, reported 10 cases of ectopic cataract in association with dermatitis (Atopic Dermatitis [Disseminated Neurodermatitis] of Young Adults, ARCH. DERMAT. & SYPH. **34**:935 [Dec.] 1936). I do not believe that he felt that the roentgen rays were a factor in those cases. He stated the belief that the lens capsule as an ectodermal structure may be influenced just as the skin is by the eczematous process.

Sporotrichosis (Disseminated Subcutaneous Type). Presented by DR. E. W. NETHERTON and DR. GEORGE HASKEL CURTIS (by invitation).

G. M. B., a clergyman aged 54, who appears to be in good health, stated that about five years ago moderate aches and pains developed in the muscles and joints of the extremities; these were noticeable during activity. About one week later nodules appeared on his right hip, followed shortly by a crop of nodules scattered over the body. There have been two later crops, about one week apart. Many lesions were subcutaneous; others seemed to affect the skin primarily. The deep nodules that came to the surface and the superficial ones were mildly tender and red, and several of them had suppurated. There has been no trauma, fever, malaise, fatigue or diarrhea. He has had a chronic nonproductive cough for several years.

Examination reveals a generalized, disseminated nodular eruption involving the subcutaneous tissue and the skin, the lesions varying in size from that of a pea to that of a walnut. Some of the deep lesions are attached to underlying fascia or muscles, while the overlying epidermis is unchanged. The more superficial nodules are reddish, and a few are cystic. All are moderately firm. The lesions are mildly tender, and some of the superficial ones are ulcerated.

General physical examination showed no essential abnormality. A roentgenogram showed normal pulmonary fields and old calcified mediastinal nodes.

The erythrocytes, the leukocytes and the hemoglobin were within normal limits. A smear of blood showed 5 per cent eosinophils. The urine was normal. The Wassermann and the Kahn reaction were negative. The spinal fluid showed no cells, and cultures of blood and of spinal fluid have shown no organisms. The

Mantoux test with a dilution of 1 : 100 old tuberculin showed erythema 1 cm. in diameter in seventy-two hours. Cultures of pus aspirated from nodules showed a fungus identified as Sporothrix. Guinea pigs were inoculated, but the results have not been reported.

Histologic examination showed a granuloma with early central abscess formation involving all layers of the skin and extending into the subcutaneous tissue. Scattered throughout the epidermis were polymorphonuclear leukocytes. The papillae and the corium were moderately infiltrated with polymorphonuclear, eosinophilic and mononuclear leukocytes. The mononuclears predominated in the peripheral zones of the granuloma, where there was capillary proliferation. Centrally there was proliferation of fixed tissue cells, and in the center were densely packed polymorphonuclear leukocytes. The edema was mostly intercellular. No spores or hyphae were found. There was no evidence of tuberculosis. Cultures and smears were exhibited.

DISCUSSION

DR. C. L. CUMMER: I should like to ask the presenters if they have been able to determine the portal of entry for the infection in this case.

DR. E. W. NETHERTON: We have been trying to decide. Sometimes the infection enters through the lung, but in this case apparently there is no portal of entry that we can trace. The infection did not follow trauma. There was no infection of the upper part of the respiratory tract, and there was no initial lesion. The lesions came out in groups or showers, so they must be blood-borne metastatic lesions. We have been unable to obtain organisms by culture of the blood.

DR. C. L. BASKIN, Akron, Ohio: I saw this man about three years ago, at which time there were probably ten or twenty lesions such as he presents today. Only two or three were of the deep subcutaneous type. At that time I made a diagnosis of small lymphatic tumors. I incised one that was painful and got only a small amount of bloody serum instead of pus, which I had expected to find.

DR. J. R. DRIVER: At present Dr. Cole and I have a patient in the hospital for study who has exactly the same type of lesions. Some of the lesions have ulcerated, while others are palpable in the subcutaneous tissue. Larger lesions appear on palpation as tumors or nodules but are actually abscesses containing pus. Examination of smears shows no micro-organisms. We suspect sporotrichosis or tuberculosis. Cultures and inoculations of guinea pigs have been made. Clinically, however, the evidence is mostly in favor of sporotrichosis, a disease which is rare in this section of the country.

DR. CLAUDE BAZIL NORRIS, Youngstown, Ohio: I have not observed a single case in which I could make a diagnosis of sporotrichosis in this part of the country for fourteen years, and yet in Oklahoma City in two years I observed at least 12 cases. The disease is rather frequent in that section of the country.

DR. E. W. NETHERTON: I think the interesting thing about this case is the multiformity of lesions. There are gumma-like lesions, abscesses that are definitely discolored and subcutaneous nodules which are really subcutaneous abscesses after they have been present for a while. One of the characteristics of the disease is that it is necessary to palpate the lesions to find them. There are many lesions which one would not know were present if one did not palpate the body. The patient has had no systemic reaction. Dr. Curtis aspirated some nodules and from the material obtained got a pure culture of this fungus. In the smears from the pus we were unable to demonstrate any organism. According to Ormsby, it is impossible to demonstrate the organism from such smears. It is necessary to grow it from cultures or by animal inoculation. We shall be interested to know whether we are going to obtain organisms on culture of the blood.

DR. JOHN A. GAMMEL: The cultures and smears show all the characteristics of sporotrichosis. In differential diagnosis the disseminated type of blastomycosis may give a clinically identical picture and can be differentiated only by isolation of the fungus.

Lymphogranuloma Venereum, with Extension to the Hip. Presented by Dr. W. F. Schwartz (from the Department of Dermatology and Syphilology, the Cleveland City Hospital).

L. T., a white man aged 50, was admitted to the hospital on June 13, 1937, because of a swelling in the right groin of three months' duration. About two months before his admission the mass had been incised and drained. The Frei test gave strong positive results. The temperature ranged between 38 and 39.8 C. (100.4 and 103.6 F.) and subsided after aspiration of pus from abscesses in the groin. About three months ago the patient began to have severe pain in the right hip and thigh, accompanied with fixation of the hip. A roentgenogram of the lumbar spine, the hip and the pelvis on Aug. 9, 1937, showed no abnormality. Roentgenograms on Nov. 3, 1937, revealed destruction of the head of the femur and the acetabulum and obliteration of the hip space. An antigen made from pus aspirated from the hip produced positive Frei reactions in cases of known lymphogranuloma venereum.

There is marked swelling just below the right inguinal ligament. As much as 200 cc. of pus has been aspirated from this at one time.

Cultures of this pus showed no tubercle bacilli or other pus-forming organisms. Roentgen examination of the chest showed no evidence of tuberculosis.

Serologic tests for syphilis gave negative results. The Mantoux test with a 1:10,000 dilution produced a negative reaction.

Claude Bazil Norris, M.D., *President*

Dec. 16, 1937

C. L. Cummer, M.D., *Secretary*

J. R. Driver, M.D., *Reporter*

Amyotrophia Syphilitica with Subcutaneous Fibroid Nodules. Presented by Dr. Hal Elson Freeman (from the Department of Dermatology and Syphilology, the Lakeside Hospital).

L. C., a Negro aged 56, has complained of progressive muscular weakness in his extremities for the past five years. For about the same period he has noticed lumps under the skin in the region of the elbows. He states that a chancre developed in 1908 but that he never received antisyphilitic therapy.

There are marked atrophy and weakness of the muscles of the hands, the forearms, the legs and the feet. Distal to the olecranon process on the extensor surface of each forearm there are several subcutaneous nodules from 1.5 to 2 cm. in diameter. They are slightly tender when firmly pressed.

The Wassermann reactions of the blood and the spinal fluid were strongly positive. The cell count was normal and the globulin reaction negative. The colloidal gold curve was of the syphilitic type.

DISCUSSION

Dr. H. N. Cole: Subcutaneous fibroid nodules are certainly infrequent in the clinic; I have observed not more than 2 or 3 cases. I can recall but 2 in private practice. The condition is seen more frequently in association with yaws than with syphilis.

Pemphigus of the Conjunctivas and of the Mucous Membranes of the Mouth and the Genitalia. Presented by Dr. W. F. Schwartz (from the Department of Dermatology and Syphilology, the Cleveland City Hospital).

M. E., a Polish woman aged 50, has complained of burning and redness of the eyes for three years. During the past year the palpebral conjunctivas have become

adherent to the bulbar conjunctivas. She states that for about one year sores have been developing in her mouth, and for the past two months similar sores have appeared on the genitalia. She has lost 30 pounds (13.6 Kg.) in the past eight months.

Both eyes are affected by fibrinoadhesive conjunctivitis resulting in adherence of the lids to the orbits. The bulbar conjunctivas present a beefy red granular surface. The corneas are clear and uninvolved.

On the buccal mucosa of the cheeks, on the soft palate and extending to the anterior tonsillar pillars, there are discrete irregular confluent patches of superficial ulceration showing bright red clean surfaces. In the sulcus formed by the left labium majus and labium minor there is a denuded reddish lesion about 1 cm. in diameter.

Serologic tests for syphilis were negative. Blood counts and a hemoglobin determination gave results within normal limits. A patch test of the skin with scrapings from the patient's dental plates gave negative results.

DISCUSSION

DR. G. W. BINKLEY: This is the second case of pemphigus of the conjunctivas that I have observed. The condition usually comes to the attention of the oculist, who generally believes the disease has no relation to cutaneous pemphigus. Microscopically, vesicles can be demonstrated, and for this reason the condition is called ocular pemphigus.

DR. H. J. PARKHURST, Toledo, Ohio: I had a patient a number of years ago who had this conjunctival condition for some little time; finally similar lesions developed on the mucous membrane and the genitalia. About two or three months after this, I believe, cutaneous lesions appeared, and the patient died of pemphigus.

DR. R. E. BARNEY: I should like to ask how long after the appearance of the initial lesions the cutaneous lesions and death followed.

DR. H. J. PARKHURST, Toledo, Ohio: I should think perhaps two years.

DR. R. E. BARNEY: This patient has had burning red eyes for three years. This seems to me a long interval to expect pemphigus to exist without development of other lesions on the body, and I suggest that a microscopic examination of material from the mouth be made for fungi.

DR. E. W. NETHERTON: My associates and I have a patient, a woman, who has pemphigus of the conjunctivas with lesions of the mucous membrane. The conjunctival sacs have been completely obliterated and attached around the cornea. She has had the disease for a number of years, and on two occasions we have seen bullous lesions in her mouth. The conjunctivas were not nearly so red as those of the patient shown today, and the mucosal lesions did not have the erythematous areola that this patient shows. There have been no genital lesions thus far.

DR. H. N. COLE: Some years ago my associates and I presented a Turkish woman who had lesions in the mouth and lesions on the genitalia that were exact replicas of those in this patient. We took sections, and the condition was seen to be typical lichen planus. It did not respond to therapy. During the time that we had her under observation no lesions developed on the conjunctivas, but as far as the mouth and the genitalia are concerned, this picture is an exact replica. I should like to see what a section from the mouth would show.

DR. R. E. BARNEY: Histologically this picture was typical of lichen planus. The mucous membrane here is distinctly eroded, and histologically erosion would appear. The corium was infiltrated. There was erosion of the mucous membrane and of the tongue.

DR. E. W. NETHERTON: These lesions are a little redder and more inflammatory than those in the average case of pemphigus of the mucous membrane.

DR. R. E. BARNEY: They are deep seated. I do not think the condition is pemphigus.

DR. H. N. COLE: I do not think so either.

DR. J. R. DRIVER: I think the possibility of erythema multiforme has to be considered. I believe the condition could be erythema involving the conjunctiva as well.

DR. R. E. BARNEY: I think the possibility of a drug eruption should be considered.

DR. J. R. DRIVER: A type resulting from barbiturates resembles erythema multiforme.

NOTE.—Subsequent biopsy showed absence of the epidermis above the level of the rete pegs throughout the entire section. The surface formed by this separation was ill defined and was covered by a fibrinous exudate which was diffusely infiltrated with about equal numbers of small lymphocytes, large mononuclears and polymorphonuclears. The remaining rete pegs of the epidermis were extremely edematous and contained a profuse infiltrate of cells similar to those seen in the corium; the basal layer was practically indistinguishable. Both deep and superficially in the corium there was a diffuse, dense infiltrate of large and small lymphocytes and endothelial cells. There were marked edema and increased vascularity in the corium, with thickening of the endothelial lining of the blood vessels.

Ocular Pemphigus or Essential Shrinkage of the Conjunctiva. Presented by DR. G. W. BINKLEY, for DR. L. V. JOHNSON (by invitation) (from the Department of Ophthalmology, the Lakeside Hospital).

C. F., a Negro aged 66, in 1929 had an inflammation of the eyes, which cleared up within a few days. In September 1933, a similar inflammation developed; this has persisted and become slowly but progressively worse.

The lower fornix of each eye is completely obliterated by an adhesive inflammation. In the right eye the conjunctival epithelium is adherent over the lower and the outer third of the cornea.

Serologic tests for syphilis were negative.

DISCUSSION

DR. L. V. JOHNSON (by invitation): Presenting the oculist's point of view, I believe that ocular pemphigus and cutaneous pemphigus are related. I understand the word pemphigus originated in 1890, and the popular idea was to describe every vesicular condition as pemphigus. Whether the lesions are infectious I do not know. No one has ever found any infectious agent to my knowledge. I have seen large amounts of vitamins used in cases of ocular pemphigus without any alteration of the course. Liver extract does not help. The disease is progressive. The use of roentgen rays, of radium and of astringents, which would hasten cicatrization, are avoided. When the epithelium begins to get in over the cornea, Bowen's membrane can be stripped off and a piece of clean mucous membrane from the mouth transplanted. The mucous membrane from the mouth will not grow in the cornea. The lids keep on shrinking, and when the patient opens his eyes, only the cornea can be seen. The patient cannot look up or down, and if vision can be preserved the oculist feels that he has done all he can.

Rosacea Keratitis. Presented by DR. G. W. BINKLEY, for DR. L. V. JOHNSON (by invitation) (from the Department of Ophthalmology, the Lakeside Hospital).

I. F., a Jew aged 63, has complained of pain, redness, tearing and photophobia in the spring for the past fifteen years.

The conjunctiva of the right eye is markedly injected. A tortuous vessel is seen about the outer edge of the cornea, and from this numerous smaller vessels radiate inward for a distance of 2 or 3 mm. Just beyond this area an irregular, crescent-shaped scarring opacity about 1 mm. wide occupies the lower half of the cornea. The left eye shows similar but less severe involvement.

Serologic tests for syphilis were negative.

DISCUSSION

DR. L. V. JOHNSON (by invitation): The matter of diagnosis in ocular rosacea keratitis is definite as far as the oculist is concerned. There are cases in which there is marked rosacea. Whether that is incidental I do not know. One characteristic of the ulcer is a large tortuous vessel that comes up toward the cornea. Often after a week end in which there has been a good deal of drinking or eating of rich food the patient's eye will be sore; on examination a panus of vessels will be found to have grown up across the limbus. This condition is typical rosacea keratitis. The ulcer is not infectious and should not be cauterized. It will heal, leaving a little infiltrate. It is seen in women four times as often as in men, and is most common between the ages of 25 and 40. A patient may have one attack and never any more, or an attack in one eye and a subsequent one in the other eye. If the patient abstains from alcohol and spices, he usually has no difficulty. The process is self limited, and I have not seen any particular advantage from treatment. I usually use an ichthammol ointment, which seems to stimulate epithelial repair. The patients are referred to dermatologists for the rosacea of the face, and I am convinced that with treatment of the cutaneous condition relapse in the eye is uncommon. Rosacea keratitis is not at all uncommon.

DR. H. N. COLE: Is the condition ordinarily seen in connection with severe or with mild rosacea?

DR. L. V. JOHNSON (by invitation): I have seen it with severe, but more often with mild, rosacea. I recall only 1 patient with rhinophyma.

DR. J. R. DRIVER: It would appear that the best therapy for this disease is treatment of the rosacea, in order to prevent relapse. Perhaps if dermatologists looked for residual opacities and vascularization at the borders of the cornea in cases of rosacea, the disease would be recognized more frequently.

DR. E. W. NETHERTON: Are the corneal ulcers sterile, and is secondary infection usually present?

DR. L. V. JOHNSON (by invitation): The ulcers are not infectious. It is best not to do anything to make the opacity larger. Occasionally a patient gets secondarily infected, but that is not common.

Secondary Syphilis (Corymbiform Type). Presented by DR. GARRETT ARTHUR COOPER (from the Department of Dermatology and Syphilology, the Lakeside Hospital).

Scleroderma. Presented by DR. GARRETT ARTHUR COOPER (from the Department of Dermatology and Syphilology, the Lakeside Hospital).

Lupus Vulgaris. Presented by DR. GARRETT ARTHUR COOPER (from the Department of Dermatology and Syphilology, the Lakeside Hospital).

SAN FRANCISCO DERMATOLOGICAL SOCIETY

N. N. EPSTEIN, M.D., *President*

Dec. 3, 1937

H. V. ALLINGTON, M.D., *Secretary*

Atrophia Pilorum. Presented by DR. N. N. EPSTEIN and DR. E. A. LEVIN.

This patient, a white man aged 23, a clerk, first noticed two and one-half years ago that the hair about the frontal and the parietal region was breaking off, leaving a patch of sparse "stubble," and that the hair was dry. At times the process has been quiescent and the hair has tended to regrow.

Microscopic examination of a hair showed a splitting of the shaft and a tufted, bushlike effect at the broken end. The root appeared atrophic. There was no evidence of ringworm.

The patient has been examined by an internist for a possible endocrine disturbance, but none was noted. The basal metabolic rate is +6 per cent. A blood count and urinalysis showed no abnormality. A culture on Sabouraud's medium showed no organisms.

DISCUSSION

(All members apparently agreed with the diagnosis.)

Alopecia Areata. Presented by DR. H. V. ALLINGTON.

A. Y., a man aged 28, a college student, is presented from the E. V. Cowell Memorial Hospital, Berkeley, Calif. He was born in Berlin, Germany, but moved to Tel-Aviv, Palestine, at the age of 7 years. After he had been there for about a year, a patchy loss of scalp hair occurred. His scalp was epilated with roentgen rays at that time. After this his hair returned completely. Since then, however, he has had periods of patchy loss of scalp hair alternating with periods of more active growth. He states that on several occasions, the last one about a year ago, the hair regrew completely. He has noted irregular thinning of his eyebrows and a sparseness of axillary and pubic hair during the past few years.

In years past he has taken arsenic both as solution of potassium arsenite and by injection as solarson. Various endocrine preparations have been administered. The patient believes that of all his past treatment ultraviolet irradiation and shaving of his scalp have been the only helpful procedures.

This patient has been observed during the past four or five months. He presents a marked patchy, moth-eaten type of thinning of the hair over the entire scalp and the eyebrows. The scalp appears mildly atrophic in some of the bare areas. There are some oily seborrhea and a few tiny follicular pustules. There is no true scarring, telangiectasia or infiltration and only slight irregular erythema in some of the bald areas. The axillary and the pubic hair are sparse but, unlike that of the scalp, of even distribution. The patient shaves only once or twice a week.

Dr. Robert T. Sutherland, of Oakland, Calif., examined the patient, and came to the conclusion that the patient was suffering from a deficiency in the function of the anterior lobe of the pituitary gland. Treatment with extract of the anterior lobe of the pituitary gland in phenylsalicylate–coated capsules produced no apparent change, however.

The basal metabolic rate was +5 and +12 per cent, respectively, on two determinations. Microscopic examination of hair and scales from the scalp revealed no fungi. Culture on Sabouraud's medium yielded only Aspergillus niger. The Wassermann reaction was negative.

DISCUSSION

DR. H. J. TEMPLETON, Oakland, Calif.: I think the diagnosis is alopecia areata, but certain factors enter in to make the picture atypical. One must consider the possible effect of roentgen rays, for this boy was epilated once in Europe. Every one who has seen him at the clinic has felt that he had an endocrine dysfunction. I believe the condition is alopecia areata modified by an endocrine disturbance and possibly by excessive roentgen therapy.

Folliculitis Decalvans. Presented by DR. A. E. INGELS (from the dermatologic clinic of the Stanford University Hospitals).

R. B. R., a white man aged 26, a stock clerk, states that a bald spot developed on his scalp eighteen months ago. This has been gradually progressing, without obvious inflammatory changes but accompanied with some itching.

The patient's general health has always been good.

The Wassermann reaction was negative one and one-half years ago and again recently. A blood count was within normal limits. A differential count showed

51 per cent lymphocytes. The microscopic picture was consistent with the diagnosis of folliculitis decalvans.

DISCUSSION

DR. F. G. NOVY JR., Oakland, Calif.: I think that I was the first physician to see this patient, last spring. At that time he had no folliculitis except for one small area at the vertex. I thought he had pseudopelade or possibly lupus erythematosus. I gave him sodium gold thiosulfate intravenously, but this produced no change.

DR. H. J. TEMPLETON, Oakland, Calif.: When I saw the patient, the description of the condition that Dr. Novy gave held true. He had no pustular folliculitis at that time, only loss of hair and atrophy. I felt that he had pseudopelade of Brocq, but thought of lupus erythematosus. However, he had no lupus erythematosus on areas other than the scalp. I wonder whether pseudopelade of Brocq is an old term which has often been applied to lupus erythematosus. Although I feel that the condition is pseudopelade, I should not be surprised if lupus erythematosus developed in other areas at a later date.

DR. L. R. TAUSSIG: I believe that this patient has pseudopelade of Brocq rather than folliculitis decalvans, although the distinction is merely academic.

DR. HARRY E. ALDERSON: At one time I observed definite pustular folliculitis in this case.

DR. A. E. INGELS: I have based my diagnosis of folliculitis decalvans mainly on the presence of many pustular hair follicles in the periphery of the lesion when he was first seen; on the dead white, deeply atrophic, glistening skin (now pinkish, owing to irritation by treatment), and on the marked abscess formation observed microscopically around the hair follicles. Favus is excluded by the microscopic picture of the hair and scales, by the history that at no time were there any yellow scutula and by the absence of the essentially follicular atrophy. A diagnosis of lupus erythematosus is unlikely clinically because there is no appreciable inflammation. Microscopically, the deeply atrophic sclerotic connective tissue, besides the abscess formation, speaks against lupus erythematosus. The horny plugging of the hair follicles which is seen well clinically and in one instance histologically, is found in folliculitis decalvans, lupus erythematosus and pseudopelade. The extensiveness of this plugging might favor a diagnosis of pseudopelade if it were not for the numerous follicular abscesses seen when the patient came under observation. These have disappeared under treatment. In their later stages the appearance of these diseases is often confusingly similar.

Tuberculosis Cutis. Presented by THE STAFF OF THE DIVISION OF DERMATOLOGY OF THE UNIVERSITY OF CALIFORNIA MEDICAL SCHOOL.

G. J. L., a white boy aged 17, was first seen on Nov. 3, 1937. At that time he had a moderately soft, indurated, plaquelike tumor about 4 cm. in diameter over the right zygomatic area. The borders were not definite but showed irregular, pseudopod-like processes extending into normal tissue. There was a central crusted area. There had been a recent incision. No spontaneous ulceration had occurred.

Physical examination and roentgenograms of the chest showed no abnormality.

A biopsy showed changes characteristic of chronic granuloma. No acid-fast bacilli were seen. A guinea pig was inoculated with material from the lesion.

Roentgen therapy was started, and 75 roentgens of unfiltered radiation has been given once a week for three treatments.

DISCUSSION

DR. G. V. KULCHAR: I agree with the diagnosis.

DR. HARRY E. ALDERSON: I agree with the diagnosis. The treatment is obvious. The condition is localized, rather inactive tuberculosis of the skin. Whatever can be done to build up the resistance of the host naturally will help.

DR. H. J. TEMPLETON: If the diagnosis of tuberculosis is proved, I should suggest that the lesion be treated as cancer with actual cautery. This will leave a scar, but a scar that is stationary is preferable to tuberculosis which is progressive. In cauterizing it, I should go clear to the subcutaneous tissues. Several patients whom I have treated by this method are entirely well.

DR. HARRY E. ALDERSON: In a similar case, of a woman with a lesion on one cheek, I was present at the time surgical extirpation was done, but the surgeon did not go deeply enough. I urged him to go deeper, and he did and removed the subcutaneous fat. The fat was sectioned and tubercles found.

DR. FRANCIS TORREY: In this case the organisms were not actually found. It has been decided that destruction of the lesion should await the results of inoculation of the guinea pig.

When the section was examined again today, some brown granules (both intracellular and extracellular) were seen, which apparently were not artefacts. Dr. James Rinehart thought it would be advisable to have more sections cut for study.

DR. MERLIN TREVOR-ROPER MAYNARD, San Jose, Calif.: I think that in a case of this sort, although gold therapy has not often been helpful in tuberculosis of the skin, it should be tried. Some years ago I had a case of extensive ulcerating lupus which healed completely after forty-five injections of sodium gold thiosulfate. Improvement was noted after fifteen injections.

DR. L. R. TAUSSIG: I am not at all certain that the condition is tuberculosis cutis rather than sarcoid. I think that the roentgen treatment that has been instituted is logical.

Actinomycosis. Presented by DR. STUART C. WAY.

C. R., a man aged 28, a native of the Philippine Islands, was first seen on Sept. 24, 1937, because of an eruption limited to the face and neck.

It is the patient's belief that the infection began while he was working on a ranch in central California. The first lesion appeared on the right cheek two years ago. At this time treatment was received at the clinic of the Stanford University Hospitals. Soon afterward several Japanese physicians treated the lesions by incising them and expressing their contents. Still later, Dr. Stanley Chambers, of Los Angeles, used roentgen radiation and potassium iodide with good results, but relapse soon followed.

Since the patient's initial visit satisfactory progress has been made as a result of administration of saturated solution of potassium iodide and local use of solid carbon dioxide. Dr. A. P. Krueger, of Berkeley, Calif., attempted to make an autogenous antigen, but considerable difficulty has been encountered due to the scanty growth of Actinomyces obtained on Sabouraud's medium.

DISCUSSION

DR. N. N. EPSTEIN: A few years ago I had a case of actinomycosis of the face and neck. The process was apparently completely eradicated by the intravenous use of typhoid vaccine and of sodium iodide. If this therapy has not been used in this case, I should recommend it.

DR. F. G. NOVY JR., Oakland, Calif.: Ordinarily with actinomycosis one sees much deeper involvement than this boy presents. Could the dose of potassium iodide be increased? These patients usually do well under heavy dosage.

DR. G. V. KULCHAR: I have seen this patient before. He was treated—and there was some response seemingly—with thymol. There was no doubt about the diagnosis of actinomycosis. In another case I used thymol successfully —3 or 4 Gm. a day in phenyl salicylate–coated capsules.

DR. STUART C. WAY: As a satisfactory culture could not be obtained in this case, material furnished by Dr. F. D. Weidman has been used by Dr. Krueger in preparing an antigen. The patient will be shown at a later date, when the results of treatment can be noted.

Fox-Fordyce Disease. Presented by DR. STUART C. WAY.

F. G., a girl aged 14, born in San Francisco, was first seen on Nov. 23, 1937, because of numerous small perifollicular papules which first appeared eighteen months ago. The patient states that the involved areas—the axillas, the breasts and the pubes—occasionally itch intensely.

DISCUSSION

DR. L. R. TAUSSIG: This condition usually develops in women at the time of the menopause, although it occasionally occurs in young girls. The youngest patient I have seen was 13. This patient has no alteration of the menstrual cycle. I have no idea what one should do for her.

DR. N. N. EPSTEIN: I think this case is a classic example of the disease.

DR. H. J. TEMPLETON, Oakland, Calif.: There have been reports in the literature of the successful use of some of the newer ovarian or "sex" hormones in the treatment of Fox-Fordyce disease. I think it would be wise to refer to those reports.

DR. STUART C. WAY: With the exception of a soothing lotion recently prescribed, there has been no treatment in this case. Roentgen therapy, however, seems the method of choice.

A Case for Diagnosis (Nevus? Atrophic Scar?). Presented by DR. F. G. NOVY JR., Oakland, Calif.

B., aged 9 weeks, was delivered by low forceps operation. At that time there was no evidence of trauma due to instrumentation.

On examination the baby presents over the right parietal bone, 2 or 3 cm. lateral to the midline, a circular, sharply circumscribed lesion 1 cm. in diameter. The epidermis is atrophic, shiny and wrinkled. The lesion has a translucent appearance, suggestive of loss of deeper structures in the corium. In the central portion there is a small blood vessel. Surrounding this lesion the hair is thicker and longer than elsewhere on the scalp. The lesion was noted at birth and has not changed since then.

A roentgenogram of the skull showed no failure of closure of the sutures, and there is no evidence of connection of the lesion with tissues within the cranium.

DISCUSSION

DR. L. R. TAUSSIG: The clinical appearance of the lesion is that of angioma that has regressed spontaneously. There is, however, no history of angioma.

DR. N. N. EPSTEIN: The lesion looks as though some fluid might be present.

DR. H. V. ALLINGTON: Would it be possible for a meningocele to have been "pinched off" there? I believe that hypertrichosis may occur about a meningocele.

DR. F. G. NOVY JR., Oakland, Calif.: That seems to be conceivable.

DR. MERLIN TREVOR-ROPER MAYNARD: Is there any change at all when the baby is straining or crying? My impression is not of a scar but of possible lymphangioma. I think fluid might be obtained on aspiration with a fine needle.

DR. F. G. NOVY JR., Oakland, Calif.: There is no change when the baby is crying.

A Case for Diagnosis (Poikiloderma? Scleroderma?). Presented by THE STAFF OF THE DIVISION OF DERMATOLOGY OF THE UNIVERSITY OF CALIFORNIA MEDICAL SCHOOL.

E. B. L., a woman aged 54, a native of Central America, was first seen in the clinics of the University of California Hospital in March 1924.

The present illness is of over ten years' duration and is characterized by abdominal pain; alternating constipation and diarrhea; stomatitis; generalized

pruritus which is more marked about the vulva and the anus; pain, burning and numbness of the hands and feet; intermittent bleeding from the nose and the gums, and gradual changes in pigmentation, with increasing redness of the face and neck. For long periods she has been on a smooth, restricted diet because of her abdominal complaints. She has had frequently recurring attacks of sinusitis and cystitis and fairly persistent hypochlorhydria.

She was first seen in the dermatologic clinic in 1926. At that time there was a slight thickening of the skin of the palms and the soles, with reddening and scaling and a few deep vesicles. In July 1931 herpes zoster involved the ulnar aspect of the left arm.

At present a diffuse process of the skin extends from the neck to the feet and is most marked on the extremities. There is general hyperpigmentation of the skin, with areas of depigmentation over the dorsa of the hands and feet suggesting ordinary vitiligo, but in many other larger areas the depigmentation is distributed in dots varying in size from that of a pinpoint to that of a pinhead in the midst of hyperpigmented skin. In addition, in many areas definite atrophy with telangiectasia gives the appearance of mild radiodermatitis. There is telangiectasia of the mucosa of the lips and the tongue and of the palms. Sclerodactylia is present on the fingers, worse on those of the right hand. The patient has dermatophytosis of the feet.

Physical examination on Nov. 30, 1937, showed no other abnormality.

Extensive roentgen and laboratory studies, including studies of the blood, have shown nothing abnormal except achlorhydria, which was confirmed by the Ewald test meal in 1925, in 1927 and in 1928. Studies of vitamin C metabolism revealed figures within normal limits in November 1937. The patient has been taking brewers' yeast and vitamin C for about two months and has had no diarrhea during this period.

Microscopic examination of skin from the back showed a picture characteristic of a sclerodermatous process.

DISCUSSION

DR. MERLIN TREVOR-ROPER MAYNARD: I should suggest that the skin be studied for arsenic.

DR. N. N. EPSTEIN: This patient presents atrophy and telangiectasia of the skin of the face, the back and the flexures of the arms and fibrosis of the flexures of the fingers. There has been prolonged progressive change in the skin, associated with pruritus. All this would fit into the picture of poikiloderma. Vitiligo and scleroderma have been considered, but I believe that the telangiectasia definitely favors a diagnosis of poikiloderma.

DR. H. J. TEMPLETON, Oakland, Calif.: I agree with Dr. Epstein that the condition is probably poikiloderma.

DR. L. R. TAUSSIG: The classification of these atrophic conditions is difficult. They are all closely related.

It seems to me that this patient presents a typical picture of white spot disease. The itching is compatible, and so are the alteration in pigmentation and the atrophic spots. The telangiectasia is not similar to that seen in a case of typical poikiloderma. In addition, microscopically there are thinning of the epithelium, marked fibrosis, loss of elastic fibers and a moderate amount of infiltration, which would fit perfectly well with scleroderma. I feel that tentatively this case should be considered one of morphea.

DR. N. N. EPSTEIN: I should like to ask whether telangiectasia and pruritus are present in cases of white spot disease.

DR. L. R. TAUSSIG: I recently read an abstract of an article by Urbach in which he reviewed white spot disease; he mentioned that pruritus was often a definite symptom, particularly at first. This patient has been under observation for thirteen years, and for a long time her only complaint was itching. The telangiectasia might be due to scratching.

Sarcoid of Boeck. Presented by Dr. Stuart C. Way.

P. S., a man aged 37, a native of Italy, was first seen on Nov. 8, 1937, because of several grayish white depressed lesions on the dorsum of his tongue to the left of the midline. These lesions are irregular and have slightly infiltrated borders. There are several somewhat similar lesions, with elevated borders and depressed, depigmented centers, on the back, the abdomen, the right hip and the anterior surface of the left shoulder.

The initial lesion appeared on the chest two years ago and after a short time disappeared, leaving only a small depigmented spot.

The Wassermann and the Kahn test were negative, and a blood and a differential count showed no abnormality. Roentgenograms of the chest showed nothing abnormal.

A small section of skin representing a typical lesion was removed from the abdomen, and a diagnosis of sarcoid (Boeck), diffuse type, was made after microscopic study.

DISCUSSION

Dr. C. J. Lunsford, Oakland, Calif.: I think this case is one of lichen planus.

Dr. Harry E. Alderson: The lesions on the wrists, the back and the tongue are typical papules of lichen planus. The patient could have sarcoid, but it would be most unusual.

Dr. Stuart C. Way: One would be inclined to regard this case as one of lichen planus, but several of the lesions suggest sarcoid more than lichen planus. An earlier lesion, which disappeared after treatment, left a slight atrophic scar. Pruritus is completely absent. Microscopically, the infiltrating cells lie more deeply in the corium and occur in greater profusion than one would expect in a case of lichen planus.

Dr. L. R. Taussig: It seems to me that the lesions on the tongue are typical of lichen planus, as are those on the wrist. The fact that some previous lesions have cleared, leaving atrophic scars, is not, I think, necessarily against the diagnosis of lichen planus. Frequently lichen planus itches little or not at all.

ATLANTIC DERMATOLOGIC CONFERENCE

Philadelphia, Dec. 11, 1937

Thomas Butterworth, M.D., *Secretary*

Syringomyelia with Malum Perforans in Brothers. Presented by Dr. Frank C. Knowles, Philadelphia (from the service of Dr. H. A. Reimann, Jefferson Medical College Hospital).

R. D., a white man aged 24, and H. D., his brother, aged 27, exhibit similar neurologic and cutaneous changes. The condition had its onset in R. D. at 17 years and in H. D. at 18 years. The first sign in both patients was a small blister on the sole; this enlarged and became an open sore, and through it a small piece of bone was extruded a month or so after onset. At the beginning there were moderate pain and redness of the foot, and the patients could differentiate heat and cold on the sole. As destruction continued, sensation of temperature and of pain disappeared, except for slight discomfort if the patient persisted in walking while sequestrums were extruding. As pieces were extruded, the feet began to lose their freedom of motion and finally became rigid and fixed at the ankle. Physical examination shows both feet to be rounded and foreshortened (about 5 inches [12.5 cm.] long) with enlarged, deformed toes. On the ball of each foot there is an ulcer about 2 inches (5 cm.) in diameter with a granulating base and a serous discharge. The feet and the lower two thirds of the legs are pale and constantly covered with beads of cold sweat. The arterial pulsations are good. The tendon reflexes of the legs are increased. There are no pathologic reflexes.

At the junction of the upper and the middle third of the leg is a line of demarcation below which normal sensations cannot be felt; there is perception of touch but not of pain. Vibratory sense is preserved. Data on the family for four generations are available. Only male members have been affected, and the disease has been transmitted only through the male line. Six members, the paternal great-grandfather, grandfather and father and a paternal uncle besides the 2 patients, are known to have had the disease. Nine sisters are free from the condition. There have been normal men in the earlier affected generations. The great-grandfather died of gangrene of the feet; the affected uncle, of diabetes, at 31. The onset has been regularly at about 18 years of age. The father, aged 53, had the index and the little finger of the right hand and both legs below the knee amputated. A younger brother, aged 22, has some discoloration of the toes and scaling and a definite diminution in the thermal sensation of the soles. Roentgen studies of the feet showed the much depressed and largely destroyed metatarsal bones and only remnants of the phalanges.

DISCUSSION

Dr. Howard Fox, New York: The lesions on the feet of both boys closely simulated neural leprosy. I have a photograph of a patient with neural leprosy whose foot was an absolute replica of one of those feet. In the little experience I have had with syringomyelia, the lesions have affected the upper extremities rather than the lower. A most interesting feature is the presence of the disease in four generations.

Dr. John H. Stokes, Philadelphia: I should like to point out that this type of disease is sometimes related to lymphangioma and hemangioma of the extremities. In the younger boy, after the changes induced by the atrophy of disuse have been allowed for, there are a ropy feel and a bluish discoloration of the calves, suggesting deep varicosities, which I think should be investigated further.

A Case for Diagnosis (Mycosis Fungoides?). Presented by Dr. Joseph C. Bernstein and Dr. Lloyd W. Ketron, Baltimore (from the Johns Hopkins Hospital).

D. R., a Negro aged 56, presents two types of lesions, one on the face and the other on the scalp and the body. The lesions on the face cover the nose, the eyebrows and contiguous surfaces and the malar surfaces midway to the ears. The primary lesion is of nodular hypertrophic type, and the eyes and nose are three times their normal size, yet maintain a semblance of their usual contour. The entire area presents a raw red exudative surface. In spots there are lacunas of serum or pus, associated with occasional bleeding points. The border is a peculiar grayish brown and slopes into the surrounding skin. The lesions on the eyelids have become so large that they have rendered vision impossible. On the body and the scalp there are multiple oval lesions varying in size from 1 to 5 cm., which are crusted or have a seropurulent exudate. On the body the lesions are somewhat more infiltrated and larger. The most prominent ones occur on the arms and the back. On the body the patches tend to become oval, and in places there are groups of accentuated follicles. After 2 skin units of unfiltered roentgen radiation have been applied to the face the patient's condition has remained unchanged. Two injections of neoarsphenamine have not produced any improvement. The medical examination showed no abnormality. The Wassermann test, Frei tests with three known positive antigens, sensitivity tests with spores, dark field examinations, tuberculin tests, cultures for fungi and Bacillus mallei, roentgen examination of the skull and the chest and bacterial stains on biopsy specimens, including the Giemsa stain for Donovan bodies, showed no abnormality.

DISCUSSION

Dr. Fred D. Weidman, Philadelphia: Clinically this condition looks like mycosis fungoides, but histologically it does not. The designation of mycosis fungoides is largely morphologic. Its etiology is not known, except that in a

vague way it is related to the lymphoblastomas. Cases are now accumulating, though, in which practically the entire symptom complex is referred to disease involving one or another of the essential elements of blood-forming tissue. Hodgkin's disease and lymphatic leukemia may give the picture of mycosis fungoides clinically, and recently aleukemic reticulosis has come on the scene. So it is always in order not to let the diagnosis rest on clinical appearances but to inquire exhaustively into the state of the blood-forming tissue. The bone marrow has not been examined in this case, and it so happens that bone marrow is the item which will give the most information on a subject of this sort. Biopsy of the sternal marrow is something that dermatologists should turn to more and more as they attempt to catalog cases of mycosis fungoides or the lymphoblastomas.

Dr. Francis A. Ellis, Baltimore: My diagnosis in this case is mycosis fungoides, in spite of the lack of histologic evidence of that disease. Perhaps the biopsy specimens were not from the more typical area, but certainly the number of eosinophils, of plasma cells and of other large cells suggests that diagnosis. It is well known that the early stages of mycosis fungoides suggest granulation tissue. The disease is not a true d'emblée type, because there are changes that suggest premycosis fungoides, although they occurred after the tumor itself developed. I do not think sufficient filtered radiation has been applied to the tumor.

Dr. Fred D. Weidman, Philadelphia: What kind of tissue was selected for histologic examination? Was it from the massive lesion on the face or from some other lesion? If the latter, what was the age of the lesion?

Dr. Joseph C. Bernstein, Baltimore: Actually three biopsy specimens were removed, one from the eczematous lesions on the body and the second and the third from the fungating lesion of the face. In the second specimen an edge of normal skin was included, and then the cut was continued deep down into the tumorous mass. The third was removed in the same way, and the incision was so deep that we struck some of the large blood vessels. In order to control the bleeding we had to electrocoagulate the biopsy site. We feel that this man does not have mycosis fungoides, despite the fact that he has some ulceration on his body and this fungating tumor on his face. We do not know what he has.

Favus (Familial Infection). Presented by Dr. Edward F. Corson, Philadelphia.

This patient is one of a group of 6 who have favus. The mother, of Italian birth, has had favus for many years. Four daughters and 1 granddaughter are affected. The male members of the family apparently are not affected.

Dr. Francis A. Ellis, Baltimore: At the clinic there are 5 cases of favus in one family and several in cousins. It is interesting that the children of the original patient have responded well to simple ammoniated mercury and salicylic acid, with little scarring. The mother has extensive scarring.

Dr. Fred D. Weidman, Philadelphia: From the familial standpoint, I suggest that sugar tolerance tests be conducted. The members know the fondness of fungi in general for sugar and of Bloch's experiments in which he was able to inoculate yeast in dogs only when they had been partially depancreatinized. It may be that familial hyperglycemia explains the predisposition.

Dr. J. H. Swartz, Boston: In 1926 I reported 4 cases of favus in one family, children and parents, all of whom are American born. I cannot understand the term "familial" here. Does it mean a tendency for the disease to run in families or contagion of a number of persons in one family?

Dr. Paul E. Bechet, New York: I think the fact that the disease occurred in this number of members of one family is simply a coincidence. I think that the patient was infected by the mother and 1 of the daughters infected her own children. I have never seen any familial tendency in favus, but I have often seen direct contagion from the parent to the children, and so on down, especially if the social position is so low that the children have to sleep with the parents.

DR. HENRY B. DECKER, Camden, N. J.: Dr. Corson did not intend that these cases should be presented as indicating a familial tendency. It was the close contact in one family living under poor conditions that promoted the spread of the disease.

Hypercholesteremic Splenomegaly, with Xanthomatosis and Dermatitis Herpetiformis. Presented by DR. HENRY B. DECKER, Camden, N. J., for DR. S. R. KAUFMAN, Wilkes-Barre, Pa.

S. S., a white man aged 44, was admitted to the hospital in June 1934. After a cold contracted while working in the mines he took three bottles of a patent medicine, "apetica Parker." The skin became dark, and itching was noted. Small yellow "spots" began to appear on the palms. After two weeks in the hospital, the patient was discharged with a diagnosis of Banti's or of Gaucher's disease. There had been no administration of a silver or an arsenical preparation. The patient has not been relieved of his symptoms and recently appeared for reexamination. The skin is grayish brown, and there are many grouped vesicular pigmented and scarred lesions, especially on the back. The scleras are jaundiced, and the teeth are in bad condition. The liver can be palpated 3 fingerbreadths above the umbilicus, and the spleen extends to the level of the umbilicus. Both organs are smooth and not tender. The blood count showed 80 per cent hemoglobin, 3,870,000 red blood cells, and 2,150 white blood cells, with 75 per cent polymorphonuclears, 21 per cent lymphocytes, 2 per cent large lymphocytes and 2 per cent eosinophils. The color index was 1.21 and the volume index 1.1; there were 39 per cent packed cells. Chemical analysis of the blood showed 69 mg. sugar; 17 mg. urea; 590 mg. chlorides, and 575 mg. cholesterol per hundred cubic centimeters. The icterus index was 100 plus and the bilirubin content 14 mg. per hundred cubic centimeters. Van den Bergh's test produced a delayed direct reaction. The Wassermann and the Kahn test were negative. The basal metabolic rate was +15. Roentgen studies of the skull showed no evidence of pituitary disease, but there was evidence of chronic sinusitis of the left antrum. A roentgenogram of the chest showed a certain degree of pneumoconiosis, and one of the abdomen, enlargement of the liver and the spleen; gastrointestinal study showed no abnormality.

DISCUSSION

DR. JOSEPH V. KLAUDER, Philadelphia: I suggest that consideration be given to melanosis (Riehl). If I remember correctly, Riehl's report included exposure to certain gases and derivatives of coal tar as causes. This man is a miner and has been frequently exposed to explosive gases.

DR. FRED D. WEIDMAN, Philadelphia: I agree that this condition is one of those which Urbach elaborated; the diagnosis is close to the splenohepatomegalic form which he specified. The hoarseness of this patient is like that in cases of lipoid proteinosis. I surmise that the pigment is hemosiderin, a point which should be determined by biopsy. If it is, a disease of the pancreas may be present together with that already established for the spleen and for the liver, and a case for cutaneous hemachromatosis thus developed.

DR. DONALD M. PILLSBURY, Philadelphia: I should like to suggest that, to determine just what type of disturbance is present, a determination of the various lipoids of the blood be made.

Acne Urticata Polycythaemica. Presented by DR. JOSEPH V. KLAUDER, Philadelphia.

E. B., a white woman aged 58, states that severe generalized itching developed in 1931; an eruption appeared and has persisted. The patient has the usual symptoms of polycythaemia vera, headache, hypertension, albuminuria, enlargement of the liver and the spleen, vasomotor instability, flushing and dermographism, a high content of uric acid in the blood and occasional ecchymosis. The primary lesion is an urticarial papule about 0.25 cm. in diameter; on the top of this a

minute vesicle or pustule forms, which is soon removed by scratching. The lesion then becomes covered with a hemorrhagic or adherent black crust. The rash occurs in successive crops, most pronounced on the scalp, the face, the neck and the upper part of the trunk but sparingly distributed over the entire cutaneous surface. The eruption and itching are considerably less when the erythrocyte count is low. The erythrocyte count ranges from about five to eight million; there is 110 per cent hemoglobin. There are 20,000 white blood cells, with 90 per cent polymorphonuclears, 4 per cent small lymphocytes, 2 per cent eosinophils and 4 per cent myelocytes. A frozen section of the skin was tested for granules of oxidase by the benzidine method and gave a strongly positive reaction. The cells giving a positive reaction occurred mostly around blood vessels and were considered to belong to the hemopoietic system, although specific types could not be identified. In all probability members of the granulocytic series are concerned, and thus a connection is effected between the cutaneous lesions and the bone marrow. Since 1934 the patient has been treated with phenylhydrazine.

DISCUSSION

Dr. Fred D. Weidman, Philadelphia: This case furnishes an example of one of the essential diseases of the blood-forming tissues. Here there is an interesting relation between the pathologic cells of the skin and the changes in the bone marrow responsible for the polycythemia. I was struck by the fact that a number of these lesions occurred along scratch marks as in cases of lichen planus. Incidentally, with rare dermatoses like this it is useful for purposes of diagnosis in future cases for the physician to determine what other dermatosis the condition most closely resembles. For example, in the cases of coccidioidal granuloma which I observed the condition mimicked scrofuloderma perfectly from the clinical standpoint; this taught me always to think of fungous disease when I encounter a scrofuloderma-like lesion. For this case of cutaneous polycythemia, I should recommend straw itch as a close (but morphologic only) "homolog." In short, in a case of vesicular urticaria, one should add polycythemia to straw itch in considering the differential diagnosis.

Dr. Lee McCarthy, Washington, D. C.: This case impressed me as one of atypical lymphatic leukemia. For several years I had a case in which the picture was similar; the diagnosis was established at necropsy.

Dr. Loretta J. Cummins, Boston: Were the cutaneous lesions present before the patient started using phenylhydrazine? This drug gives rise to certain types of eruption.

Dr. John H. Stokes, Philadelphia: It seems to me that eruptions of this sort are to be correlated with other so-called drug eruptions that accompany a wide variety of conditions affecting the hemopoietic system. They also appear in association with the lymphoblastomas. They do not have a highly specific morphologic character. They are called acne urticata only by courtesy. One sees lesions exactly like this in Hodgkin's disease and in lymphatic and in myelogenous leukemia. They are reduced to a common denominator when regarded as the result of insult to the capillary loop, whether by circulating toxins or by circulating masses of cells carrying toxic agents with them or forming embolic lesions. The histologic picture will vary from simple capillary dilatation and edema to a massive infiltration of the characteristic circulating cell. These eruptions all seem to me to tie together in various categories, depending on what is in the circulation, and not to be highly specific. "Ids" are at one end of the line and leukemia cutis and the like at the other.

Dr. Joseph V. Klauder, Philadelphia: The eruption first appeared in 1931, before phenylhydrazine was given and the diagnosis of polycythaemia vera was made in 1934. The statements made by Dr. Stokes are of interest, but I do not believe that the morphologic picture is comparable to that of the leukemias. The primary lesion is an urticarial papule. The name acne urticata is an old one for a disease which was described by Kaposi in the late eighties and of which

there have been few reported cases. The name still clings and is discussed in about ten lines in most textbooks of any size. Kaposi described an urticarial papule which becomes capped with a vesicle and a minute pustule and later forms a black, adherent crust, which is exactly what these lesions do. The condition resembles lichen urticatus, but in that disease there is no pustule formation and no black crust. In the case described by Kaposi no mention was made of polycythaemia vera. The first correlation of polycythaemia vera with this type of lesion was made as recently as 1921, and since then 8 or 10 cases have been reported. The name acne urticata polycythaemica seems consistent with Kaposi's use of that term in connection with perhaps a different etiologic background or a different phase of acne urticata; but it seems to me that the lesion is distinctive. I had never seen acne urticata as described by Kaposi; at least, I had never recognized it as such. When I first saw this patient, I felt that it was the first time I had seen that condition.

Adenoma Sebaceum in an Epileptic Moron. Presented by DR. THOMAS BUTTERWORTH, Reading, Pa.

R. B., a white youth aged 19, was presented before the Philadelphia Dermatological Society on Oct. 16, 1936 (ARCH. DERMAT. & SYPH. **35**:1156 [June] 1937). The eruption has not changed much during the past fourteen months.

DISCUSSION

DR. PAUL E. BECHET, New York: This case furnishes a beautiful example of the disease, but it is the first instance I have observed in years, in a moron or a mentally deficient person. Most of the cases that I have observed have occurred in children of good mentality.

DR. LEE MCCARTHY, Washington, D. C.: There are two types of lesions, which may cause one to miss the diagnosis. There is the typical lesion, and there is the other type that shows nothing but fibrous tissue. If a practitioner happens to see a patient with lesions like those on the back, he is likely to miss the diagnosis.

DR. HENRY D. NILES, New York: In addition to mental deficiency, this patient has another condition which has been frequently described in connection with adenoma sebaceum, a fibroma under the right great toe nail.

DR. THOMAS BUTTERWORTH, Reading, Pa.: There are 6 cases of this disease at the Pennhurst State School in a population of about 1,900. One patient is a moron and 5 are graded as idiots. All of them are epileptic. In 3 of the 4 cases in which the date of appearance of the papules on the face and the onset of epileptic seizures was known, the former preceded the latter by from three to five years; so it is possible that patients with adenoma sebaceum this year may in two or three years begin to have seizures and to deteriorate.

Darier's Disease. Presented by DR. THOMAS BUTTERWORTH, Reading, Pa.

W. H., a white man aged 47, was presented before the Philadelphia Dermatological Society on Oct. 16, 1936 (ARCH. DERMAT. & SYPH. **35**:1163 [June] 1937). His condition has progressed little in the past fourteen months.

DISCUSSION

DR. FRANCIS P. MCCARTHY, Boston: The changes in the mucous membrane in this case were interesting. The tongue showed definitely hyperkeratotic lesions on the summits of fungiform and filiform papillae. The soft palate showed a hypertrophic reaction.

DR. H. H. HAZEN, Washington, D. C.: I am interested in this patient's diet. I had one woman who starved herself for six months and lost 10 or 15 pounds (from 5 to 7 Kg.), after which a condition analogous to this one in every respect developed. I am wondering whether a vitamin deficiency can be the responsible factor in some of these cases.

DR. THOMAS BUTTERWORTH, Reading, Pa.: The history of this case is similar to that of Dr. Hazen's. This man lived for many months on a badly unbalanced and obviously deficient diet, but no information is available as to whether such a diet really preceded the disease. He has been on a diet high in calories and in vitamins in an institution for almost a year now, but there has been no appreciable change in his disease.

Lupus Erythematosus. Presented by DR. REUBEN FRIEDMAN, Philadelphia.

E. S., a white woman aged 43, was presented before the Philadelphia Dermatological Society on Oct. 15, 1937 (ARCH. DERMAT. & SYPH. **37**:682 [April] 1938). A recent histologic study was reported on by Dr. Fred Weidman as follows: "The process is not tuberculous. All the histologic criteria for lupus erythematosus are exhibited in the sections, although it must be conceded that the amount of lymphocytic infiltration is not up to average. It is curious that the deeper parts of the comedones contain such a loose type of keratinous material." A culture of one pustule yielded a hemolytic strain of Staphylococcus albus.

DISCUSSION

DR. EDWARD F. CORSON, Philadelphia: The case is principally associated in my mind with a fulminating attack of hemorrhagic purpura following gold treatment several years ago. When the purpura was relieved following transfusion, the lupus erythematosus cleared, and the patient remained free from it for approximately two years. The curious thing about the case, of course, is the change from the typical patches of lupus erythematosus which were present at that time to the verrucous lesions now present.

DR. JOHN H. STOKES, Philadelphia: I should say that the lesions on the neck and the supraclavicular region are much more recent than the rest of the process. I think, too, that they are probably something different. The whole picture ties together through the finding of a hemolytic staphylococcus. In that light, I think this woman had and still, perhaps, has orthodox erythematous lupus, with follicular plugging and keratotic material in the follicles, and that her injured sebaceous mechanism has been secondarily infected by this hemolytic staphylococcus to produce some of the changes present.

DR. REUBEN FRIEDMAN, Philadelphia: I made a vaccine from the culture in which I had recovered the hemolytic strain of Staph. albus and gave her 0.1 cc. subcutaneously. A moderate local reaction developed at the site of the injection within two days, and there were rather pronounced systemic manifestations such as chills, fever, malaise and a pronounced focal reaction about the lesions on the face. On the right side of the face the lesions developed an edematous erythema not unlike erysipelas, and the patient had to be hospitalized. The edematous erythema subsided within three days when wet compresses were applied.

DR. EUGENE F. TRAUB, New York: I was going to suggest that a vaccine be tried in this case if a definite, specific organism could be found. In a number of somewhat similar conditions I have used a vaccine with considerable success. The fact that the patient reacted so generally to the vaccine would lead one to think its use might produce a good result. I hope it was not discontinued.

Tuberculosis (Distinctive Type) in a Negress. Presented by DR. JOSEPH V. KLAUDER, Philadelphia.

H. G., a Negress aged 37, was presented before the Philadelphia Dermatological Society on Nov. 19, 1937 (ARCH. DERMAT. & SYPH. **37**:688 [April] 1938).

DISCUSSION

DR. LLOYD W. KETRON, Baltimore: I have often wondered what this condition used to be called. In some cases it was called lichen planus; I do not know why —perhaps only on morphologic grounds. One sees all transitional stages between

ordinary lupoid infiltration and that in which there is a great deal more than the usual amount of necrosis. In the cases in which there is the greatest amount of caseation there is often a negative tuberculin reaction. I have studied the condition, inoculated animals and so forth but have never been able to demonstrate any tubercle bacilli. Some pathologists accept rather hesitantly the fact that it is real tuberculosis, but I think one has to say it is. I have had 2 cases of typical systemic changes in the bones and this type of tuberculosis on the skin. The bony changes to me constitute another item of evidence that the condition is definitely Besnier-Boeck tuberculosis. I think one finds changes in the bone in more cases of tuberculosis than of typical Boeck sarcoid.

DR. JOSEPH V. KLAUDER, Philadelphia: The condition has been well reviewed by Dr. Ketron. It is interesting from the standpoint of the immunologic reaction, of the morphologic aspects of the cutaneous lesions of tuberculosis and of nomenclature. My thesis is that it appears to be a distinctive form of cutaneous tuberculosis. One may say it is a distinctive form of Schaumann's disease. Apparently it is characteristic in the Negro.

A Case for Diagnosis (Keratosis Palmaris et Plantaris?). Presented by DR. DONALD M. PILLSBURY, Philadelphia.

S. W., a white boy aged 11 years, was presented for diagnosis of a condition suspected to be neurodermatitis before the Philadelphia Dermatological Society on Oct. 15, 1937 (ARCH. DERMAT. & SYPH. **37**:681 [April] 1938).

DISCUSSION

DR. EUGENE F. TRAUB, New York: This patient presents a number of lesions on the elbows and other parts of the body in addition to those on the palms and the soles, and the latter, even though they have a rather definite demarcation, are not exactly those usually seen in cases of keratoderma. Furthermore, the type of scaling is much more profuse. It is not just a thickening of the entire layer of the skin; there is considerable scaling of a peculiar character almost suggesting psoriasis, but that diagnosis, I believe, has been excluded by microscopic examination. Because of all these features, and because apparently that diagnosis has been considered by Dr. Pillsbury, I should like to have him tell the members why he did not consider pityriasis rubra pilaris more favorably.

DR. FRED D. WEIDMAN, Philadelphia: There is a form of congenital ichthyosiform erythroderma which appears not in universal distribution but only in patches. I think in cases of this sort it is always well to inquire as to whether there is consanguinity in the parents.

DR. J. H. SWARTZ, Boston: I suggest a diagnosis of psoriasiform fungous infection of the palms and soles with accentuation of follicles. I understand that fungi have not been found, but in cases of this kind my experience has been that persistent microscopic and cultural studies will eventually show the organisms. In 1 case I made a diagnosis of ichthyosis hystrix at first and after repeated studies found organisms on the soles and the palms.

DR. LLOYD W. KETRON, Baltimore: The fact that one happens to find some fungi is not in itself indicative of ringworm. I think there is too much emphasis placed on the fact that one occasionally finds, on repeated examinations and studies, some fungi. Every one has a little ringworm on his feet, and if some other disease does develop it is likely some fungous infection there would be implanted on that. I think one is tempted to designate as fungous disease every condition in which a few spores or mycelial threads are found on culture.

DR. JOHN H. STOKES, Philadelphia: I second Dr. Ketron heartily on that. From my personal experience I think a few clearly recognizable fungi belonging to the somewhat outmoded classifications can be detected in scales and identified with reasonable certainty by ordinary office methods. Others are apt to be adventitious, especially the coarser forms.

DR. J. H. SWARTZ, Boston: I have no diagnosis in this case. The boy is getting stiff, and that suggests moniliasis associated with arthritis. I am wondering if this condition will turn out to be psoriasiform moniliasis with arthritic manifestations.

DR. DONALD M. PILLSBURY, Philadelphia: I am not presenting this case with the diagnosis of keratosis palmaris et plantaris with any degree of conviction. I considered pityriasis rubra pilaris, as the child at times has shown suggestive lesions on the backs of the fingers, and congenital ichthyosiform erythroderma, in which the lesions may be localized. In keratosis palmaris et plantaris the lesions may not be confined to the palms and the soles at all. In Jadassohn's *Handbuch* many illustrations are shown of this disease in which lesions appear elsewhere on the body.

Familial Folliculitis Decalvans. Presented by DR. FRANK C. KNOWLES, Philadelphia, for S. R. KAUFMAN, Wilkes-Barre, Pa.

A. G., a white man aged 23, at the age of 12 years noted that his eyelashes and eyebrows were becoming thin. At 14 the hair of the scalp began to fall out. During the past four or five years the pubic and the axillary hair have become thin. On the scalp there is a sparse growth of dry hair, with miliary abscesses involving the hair follicles. There are dilated follicles with little scarring. There are little hair on the trunk and the extremities and a sparse growth in the pubic and the axillary region. A sister aged 24 has the same condition. A sister aged 20 and a brother aged 18 have lost their eyelashes and eyebrows. Two brothers aged 16 and 22 are well.

DISCUSSION

DR. LLOYD W. KETRON, Baltimore: Sabouraud's acne necrotica miliaris is similar to this condition except that the lesions are widespread. The lesions on this man's scalp began as inflamed, urticaria-like papules with a central puncture, similar to acne necrotica miliaris as I have seen it. In that disease the lesions yield a hemolytic staphylococcus. I am wondering if this condition is not just a localized form of that type of lesion.

DR. LEE MCCARTHY, Washington, D. C.: The diseases may be due to the same organism, but they are two entirely different entities. Acne necrotica miliaris on the scalp is a lesion developing within from twenty-four to thirty-six hours and is accompanied with something which is absent here, i. e., a completely necrotic crust which forms on the top of the lesions. The lesions in folliculitis decalvans take sometimes days or weeks to form. The process is continuous and spreads from follicle to follicle, while that in acne necrotica miliaris is localized or, may be diffuse with discrete lesions. Folliculitis decalvans is accompanied with no pain while acne necrotica is always accompanied with intense burning and itching of the lesions and after that the formation of the crust.

DR. SIGMUND S. GREENBAUM, Philadelphia: I thought of the miliary form of acne necrotica and looked carefully for scars but could find none. A point of interest here is the congenitally weak hair-productive function which, with a lowered resistance in these hair follicles, is conducive to a primary or mixed bacterial invasion such as that in ordinary acne necrotica; the clinical picture, however, is that of folliculitis decalvans.

Pseudoxanthoma Elasticum. Presented by DR. JOHN B. LUDY, Philadelphia.

M. S., a white woman aged 43, presents a dermatosis distributed on both sides of the neck, the chest, the axillas, the legs, the thighs and the abdomen. The skin of the neck was noted to be abnormal when she was 11 years old, after subsidence of adenitis due to scarlet fever. Eight years later the patient lost 25 pounds (11.3 Kg.) and then observed a similar condition on the legs, the thighs and the abdomen. There have been no subjective symptoms. A roentgenogram of the chest showed evidence suggestive of tuberculosis, probably inactive. The calcium,

the cholesterol and the creatinine content of the blood were within normal limits. On one occasion there was evidence of mild anemia.

DISCUSSION

DR. F. J. EICHENLAUB, Washington, D. C.: Are any anginoid streaks present in this patient?

DR. EDWARD F. CORSON, Philadelphia: Anginoid streaks are present in the eyegrounds.

Congenital Fistulas of the Lower Lip. Presented by DR. JOHN B. LUDY, Philadelphia.

CASE 1.—J. K., a white man aged 64, presents a fistula on the left side of the lower lip about 3 mm. deep. The lesion produces a cosmetic defect but is painless. Its opening emits a mucous secretion which usually increases during mastication and is affected by variations in the emotional state. The condition has been present since birth. There was formerly a fissure at the midline and a third on the right side of the lower lip. The latter fissures have closed. The mother, a maternal aunt, 4 cousins on the maternal side, and 4 of the patient's 6 children have the same anomaly.

CASE 2.—C. K., aged 34, a son of J. K., exhibits bilateral congenital fistulas of the lower lip.

CASE 3.—L. K., aged 32, a daughter of J. K., presents a fistula on the left side of the lower lip. A similar fistula on the right side of this lip closed a few winters ago, after an attack of simple cheilitis. The present fistula is too minute to admit the wire of a 25 gage hypodermic needle. There is a slight mucoid secretion.

DISCUSSION

DR. FRED D. WEIDMAN, Philadelphia: This case presents a rare opportunity, indeed. A discussion of this condition appears in Sir John Bland-Sutton's book (Tumors, Innocent and Malignant; Their Clinical Characters and Appropriate Treatment, ed. 7, London, Cassell & Co., 1922) where the cases of a mother and 2 children are presented. Mandibular recesses, as Bland-Sutton calls them, were present in all and, in addition, bilateral harelip. This defect is supposed to be due to the imperfect closure of the two portions of the mandible in the midline. The condition is sometimes associated with a similar abnormality just to one side of the septum of the nose, a position corresponding to another line of fetal closure. Incidentally, these patients sometimes show deep dimples, an indication of an extension of the defect further back than the middle of the chin—that is, at the extreme uppermost limit of this lateral furrow of the face. Only one of Dr. Ludy's patients shows dimples worthy of any remark. It is always in order in cases of congenital defect to conduct a complete examination, both cutaneous and otherwise, as far as possible, for other associated congenital abnormalities; incidentally, 2 of Dr. Ludy's patients show Fordyce's disease.

Argyria, Lupus Erythematosus of the Scalp and Essential Shriveling of the Conjunctiva (Ocular Pemphigus) with Involvement of All Mucous Membranes. Presented by DR. JOSEPH V. KLAUDER, Philadelphia.

M. G., a white woman aged 51, was presented before the Philadelphia Dermatological Society on Nov. 11, 1932 (ARCH. DERMAT. & SYPH. **27**:718 [April] 1933) and on Nov. 19, 1937 (ibid. **37**:687 [April] 1938).

DISCUSSION

DR. EUGENE F. TRAUB, New York: I wonder if all these diagnoses cannot be brought together under a single heading: an unusual type of pemphigus beginning in this manner. There has been some dispute about Senear-Usher pemphigus, which some physicians regard as bullous lupus erythematosus. If this condition is

lupus erythematosus, it may be the bullous type. This patient suggested that to me, and the bullous lesions on the eyes may constitute early manifestations of pemphigus. Patients with this type of disease may show one picture in the beginning and then have typical pemphigus. I suggest the possibility of such a diagnosis instead of all these varied ones.

DR. JOSEPH V. KLAUDER, Philadelphia: There is considerable dispute as to what constitutes ocular pemphigus and what pemphigus of the mucous membranes. I have observed vesicles on this woman's conjunctivas, in her mouth and on her lips. I presume they appear on the nasal and the anal mucous membrane. Erosive areas occur on mucous membranes, and later the shriveling process, conjunctival involvement, causes immobilization of the eyeball and results in blindness. The cause of the condition is unknown, and so is a successful treatment. Another interesting feature consists of white patches on the buccal mucosa that look like leukoplakia. They have a definite lacelike appearance. They have never, to my knowledge, been described in a case of pemphigus of the mucous membrane or shriveling of the conjunctiva. Whether this feature is a part of that process or is lichen planus I do not know.

Neurocutaneous Syndrome. Presented by DR. DONALD M. PILLSBURY, Philadelphia.

A. C., a white girl aged 2½ years, is a partially paralyzed idiot. She apparently hears but sees little. Over the trunk and the extremities are numerous soft white slightly raised papules of from 0.5 to 1.5 cm. in diameter. There is no hyperpigmentation. The child has marked horizontal nystagmus and spasm of the flexors of the lower parts of the arms and of the adductors of the legs. She cannot sit up or hold her head erect. The deep reflexes are hyperactive throughout. There is no clonus or apparent sensory disturbance of the skin. Ophthalmoscopic examination shows "numerous fine stringy, vitreous opacities. The disk and the lower part of the fundus give nothing but a white reflex; orange reflexes can be seen laterally and above and in the lower periphery. This apparently indicates choroidal atrophy. There is extreme myopia."

DISCUSSION

DR. F. J. EICHENLAUB, Washington, D. C.: The lesions on the skin seem to be a form of macular atrophy. If a connection can be shown between the macular atrophy and the neurologic condition, the case offers an interesting field for speculation as to the occurrence of macular atrophy in other cases. However, there is nothing in the history of this case to show that the eruption is related to the neurologic condition.

DR. FRED D. WEIDMAN, Philadelphia: The most that I could learn from the sections was that excess fat was present. In a histologic section it is difficult to estimate this in a child, who has a good deal of fat normally. In Recklinghausen's disease the material constituting the cutaneous tumors is not always fibrous tissue, but sometimes fat is present; in the urinary bladder, even, lipomas, are sometimes met. On first studying these sections I thought the condition might be an unusual one involving a congenital fatty nevic state in connection with this neurocutaneous syndrome. When I saw the patient, however, I had to abandon that idea. The lesions are not inflammatory; it appears as though they must be referable to excess of fluid. Yet they do not satisfy the requirements for wheals; they are permanent. At the same time these lesions have a tendency to occur in a somewhat linear form following the lines of cleavage, especially on the flanks; I dare say that, considering the apparently normal appearance of these sections (the absence of edema between the bundles of collagen), the members must conclude that the white swellings are due to edematous fluid. Such fluid might readily escape when the specimen was fixed in formaldehyde and might escape demonstration entirely in the final finished histologic product.

DR. M. H. GOODMAN, Baltimore: Thorough studies, especially staining of nerves, may lead to something of interest with respect to the pathogenesis of macular atrophy.

DR. DONALD M. PILLSBURY, Philadelphia: The histologic picture in this case is disappointing. The child has a severe neurologic disturbance, which the neurologists are agreed is probably congenital, and cutaneous lesions that have remained absolutely unchanged since birth. I think this case is another example of the wide variety of changes which may affect the ectodermal system in both the nervous system and the skin.

Lichen Planus Accentuated by Neoarsphenamine Therapy; Syphilis. Presented by DR. SIGMUND S. GREENBAUM and DR. SIMON KATZ, Philadelphia.

R. M., a Negress aged 20, was presented before the Philadelphia Dermatological Society on Nov. 19, 1937 (ARCH. DERMAT. & SYPH. **37**:690 [April] 1938).

DISCUSSION

DR. HARRY M. ROBINSON, Baltimore: This patient has syphilis, but I take it that the lichen planus mentioned was there before the patient received arsphenamine. In the last few years I have seen several eruptions which strongly simulated lichen planus occurring in syphilitic patients after the administration of arsphenamine. Some of the lesions were so characteristic of lichen planus that it was difficult to distinguish them clinically. However, when the arsphenamine treatment was stopped, the patients recovered more or less rapidly, and the condition did not recur until they were given further arsphenamine. If this case is of that type, I should prefer to call the condition a lichen planus-like eruption rather than lichen planus.

A Case for Diagnosis (Recurrent Furunculoid Lesions of the Adipose Tissue). Presented by DR. BERTRAM SHAFFER and DR. DONALD M. PILLSBURY, Philadelphia.

E. K., a white woman aged 33, states that an abscess developed on the left foot in March 1936. Seven weeks later a number of "abscesses" involved the extremities and the buttocks; these were most frequent on the thighs and outer aspects of the arms and have continued to appear in crops up to the present. For months at a time, especially when many new lesions were appearing, the patient had a fever, her temperature rising to 101 or 102 F. No other symptoms have been noted, and the patient is in surprisingly good health, in view of the duration and the extent of the disease. Her past history is irrelevant except for a siege of "abscesses" ten years ago, which was terminated by tonsillectomy. The lesions are restricted to the extremities and the buttocks and in their earliest stages appear as deep-seated diffuse infiltrations apparently involving the adipose tissue and accompanied with marked tenderness and pain. In two or three days the skin about this site becomes elevated and red, later taking on a livid hue. In from seven to ten days the lesion grows to the size of a fist and the skin over it becomes elevated, in the form of a bulla-like translucent lesion through which a yellow fluid can be discerned. This rapidly ruptures, and large quantities of yellow or yellowish brown fluid are discharged. The quantity from a single lesion may be as much as 6 or 8 ounces (from 0.18 to 0.24 liters). At this time the pain rapidly subsides, and the lesion undergoes involution. Many slightly puckered scars are found over the extremities and the buttocks. These are set in a cuplike depression and represent the sites of previously active lesions. Medical examination showed no abnormalities except a palpable spleen. Exhaustive study, including bacteriologic and mycologic cultures, inoculation of guinea pigs, examinations of stools, chemical analysis of the blood, tests for various types of sensitivity to tuberculin, analysis of the urine for bromides and iodides, and tests for sensitivity to thalogen and to trichophytin showed no abnormality. Treatment with neoarsphenamine and sodium gold thiosulfate each caused a temporary alleviation of the process.

DISCUSSION

DR. ISAAC R. PELS, Baltimore: How was the factitious element ruled out?

DR. BERTRAM SHAFFER, Philadelphia: This case has been observed for about three months, and during that time no one has seen this patient do anything to her skin which might make one suspect factitious dermatitis. The lesions begin as deep-seated infiltrations, with no redness of the skin. When they are several days old, the skin becomes red. The distribution is such that the patient can reach them all, but they are symmetric. Some occur on the back and the sides of the arms, and these are rather unusual sites of factitious eruptions; there are none on the hands and the feet. The patient seems to be well balanced, and there is no reason to suspect that she would inflict this sort of punishment on herself. She gets along well at home and is most cooperative, so I think it most unlikely that this eruption is factitious.

Exudative Discoid and Lichenoid Dermatosis. Presented by DR. CARROLL S. WRIGHT, Philadelphia.

H. H. G., a Jew aged 48, was presented before the Philadelphia Dermatological Society on Sept. 17, 1937 (ARCH. DERMAT. & SYPH. **37**:525 [March] 1938).

DISCUSSION

DR. W. O. ROOP, Atlantic City, N. J.: The case impresses me strongly as one of allergic dermatitis. I should like to ask the presenter if there have been any studies of this patient from that standpoint. The lichenification and the infiltration are natural in a case in which the condition is chronic.

DR. EUGENE F. TRAUB, New York: For many years cases of this type have been observed in New York, and they have always been studied as instances of possible lymphoblastoma. More recently the condition has been looked on as a peculiar type of eruption affecting certain classes of persons and having a nervous factor; hospitalization sometimes relieves the patient. I recently had a patient with such a condition hospitalized and, with the idea of attempting to prove or disprove the presence of lymphoblastoma, had sternal puncture done by surgical technic in the operating room. An infection took place, and as a result, a rather high fever developed. Osteomyelitis set in, and for a long time the patient was ill. When she recovered, the eruption had entirely disappeared and for two years she has remained free. The sternal puncture furnishes no information about the condition.

DR. CARROLL S. WRIGHT, Philadelphia: This case was presented with the hope that some of the New York members could state whether it fits into the class of cases described by M. B. Sulzberger and William Garbe (Nine Cases of Distinctive Exudative Discoid and Lichenoid Chronic Dermatosis, ARCH. DERMAT. & SYPH. **36**:247 [Aug.] 1937). Every time I see this man he looks different. When I presented him three months ago, his body was covered with discoid patches which might be described as eczematous, but now his appearance is different. I think that the various manifestations he has shown have fitted virtually all the stages described by Sulzberger and Garbe.

Keratosis Pilaris, Possible Prelude to Pityriasis Rubra Pilaris. Presented by DR. ABRAM STRAUSS, Philadelphia.

N. D., a white boy aged 8 years, shows an eruption involving principally the arms, the legs and the face and appearing in scattered areas on the trunk. The eruption consists of spiny plugs emerging from a dry ichthyotic skin. On the face they have the appearance of fine lanugo. The condition has been present since birth and has remained stationary. There are no subjective symptoms. Four of 6 siblings have a cutaneous condition similar to that of the patient. The medical examination showed no abnormality except large, boggy tonsils with some adenopathy.

DISCUSSION

DR. LLOYD W. KETRON, Baltimore: Has the presenter studied any of these spiny plugs in the child's skin for Demodex? I have never seen anything like it, but one often does see little projections representing demodex tails sticking out.

DR. ABRAM STRAUSS, Philadelphia: This has not been done, but the patient has 4 brothers and sisters with the identical condition.

A Case for Diagnosis (Psoriasis Associated with Cutaneous Tuberculosis?). Presented by DR. ARTHUR GOMERSALL PRATT, Camden, N. J.

M. S., a white woman aged 38, had persistent cough, fatigue and an ache in the lower part of the back suggesting tuberculosis at 14. Examination of the sputum at that time showed no tubercle bacilli. Menstruation began at 12 years with dysmenorrhea and irregularity. Vitiligo developed in 1935, and at about that time patches of psoriasis were noted on the elbows and the knees. In March 1937 a rounded tender dull red elevation about the size of a quarter appeared on the right forearm. This soon broke down, leaving a moist greenish yellow mucoid substance in the bottom of the depression. There was only a slight serous discharge. A few days later a similar lesion began on the lower part of the back and followed a similar course. Early in May 1937 the same type of growth was noted on the left side of the mons veneris. General medical and laboratory studies showed no abnormality. Antisyphilitic treatment had no effect on the attack. Under semi-intensive roentgen treatment the ulcers gradually flattened and healed, with the exception of the one on the right forearm. A nodule developed in the central portion of this, with three yellowish areas. By August 16 these areas softened and gave the impression of fluctuation. Telangiectatic margins bordered the yellow regions. About September 1, two cherry-sized subcutaneous firm slightly tender nodules appeared on the right leg. These enlarged slightly, and the overlying skin became red and shiny. A new pustule appeared on the mons veneris on November 5. The two yellow areas of the nodules on the right forearm ulcerated, and the nodules on the right leg grew and became faintly kidney shaped. New nodules are present in the region of the right ankle. Those that have broken down resemble erythema induratum.

DISCUSSION

DR. LEE MCCARTHY, Washington, D. C.: The patient has psoriasis and, I thought from the section, tuberculosis.

DR. FRED D. WEIDMAN, Philadelphia: Granulomas are present, of a fibrous reticular type. The material exuded from these lesions was of a mucoid, stringy type (gummoid at least), and I am inclined to regard the condition as syphilis.

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FRANK C. KNOWLES, M.D., *Chairman*

Jan. 21, 1938

THOMAS BUTTERWORTH, M.D., *Secretary*

Granulosis Rubra Nasi. Presented by DR. CARLISLE DIETRICH, Redgranite, Wis. (by invitation).

J. McK., a Negro aged 40, is now being treated in a clinic for patients with syphilis. He has marked hyperhidrosis of the nose, with pinhead-sized papular elevations holding small droplets of sweat on their apexes. The lesions are situated

mainly on the middle portion and the alae of the nose. The patient states that this condition has been present as long as he can remember and that a brother has a "sweaty nose." Histologic sections exhibited little that was abnormal, except that the sudoral cells appeared hyperplastic.

DISCUSSION

DR. FRED D. WEIDMAN: Some of the features of granulosis rubra nasi are absent in this case—for example, the formation of definite cysts. I feel that if the material selected for biopsy had been taken from one of those papular elevations of the skin a cyst or two might have appeared in the histologic sections. There is no more question about the activity of the sweat glands histologically than there is clinically. The condition, I should say, is not fully developed, but there are other dermatoses which are not uniformly extreme in their development. Of course, the "rubra" phase cannot be seen in this instance, because the patient is so dark skinned. However, I think that the clinical and the histologic feaures together would qualify this picture as granulosis rubra nasi.

DR. CARROLL S. WRIGHT: The only patient with this condition that I ever observed was a boy of 13 or 14. Some one in discussing him said: "Before this boy reaches full growth the condition will automatically disappear." This disease is supposed to subside before the person reaches adult life, which should rule out the diagnosis in this case.

DR. CARLISLE DIETRICH, Redgranite, Wis. (by invitation): That is stated in some textbooks, but according to others the disease is apt to disappear at puberty but does not necessarily do so. It can develop at any age and has been reported in a man of 70.

DR. SIGMUND S. GREENBAUM: I think this condition is fairly common in the Negro. I presented 1 or 2 cases of this disease before this society years ago. If one looks for the disease in any clinic with a large Negro clientele, I think one will find it fairly often, particularly slight granulation and hyperhidrosis of the type present in this case.

DR. JOSEPH V. KLAUDER: I think there was a report of a series of cases in which the disease ran in families. If that is so, though I have never heard of the process' being considered hereditary, it may be an atavistic condition. Animals have moist noses; there may be a relation between the moisture and the sense of smell. It might be interesting to inquire if this man's sense of smell has become sharper.

DR. THOMAS BUTTERWORTH, Reading, Pa.: I should like to raise the question of juvenile rickets. I think this man has had rickets. Since children with rickets perspire excessively, it is reasonable to expect that any compensatory hypertrophy of the glands induced by rickets might hold over until later life.

DR. FRED D. WEIDMAN: If any investigation is going to be made of the atavistic or better, of the phylogenetic angle, I should test the regulation of heat. A perspiring nose is supposed to be a part of the heat-regulatory mechanism of the dog.

DR. J. M. SCHILDKRAUT, Trenton, N. J.: The condition looks to me like localized hyperhidrosis, such as might occur in any other region.

Nevus (Abortive Attempt at Polydactylism?). Presented by DR. CARLISLE DIETRICH, Redgranite, Wis. (by invitation).

J. H., a Negress aged 38, is being treated for syphilis. The patient has a nodular growth 1.5 cm. square on the dorsal and the lateral aspect of the proximal phalanx of the right ring finger. The abnormality has been present as long as the patient can remember, and she has at times "picked small stones" out of the lesion, which has otherwise never given her any discomfort. The mass is made up of numerous hard nodules covered with normal or slightly atrophic skin, ranging

in size from 1 to 3 mm. and containing sharply angulated, smooth-faceted, calcareous or bony particles of various sizes. A coincident bony prominence or spur extends distally and laterally from the base, approximately halfway along the phalanx. A roentgenogram is presented. There is the impression of nevus or of bone formation resulting from an abortive attempt at polydactylism.

DISCUSSION

DR. H. J. SMITH: I think the growth is a nevus. The patient has had it ever since birth.

DR. FRED D. WEIDMAN: When the material came to the laboratory for study it was stony hard, like a pebble, and I surmise that when the sections come through that little mulberry-like mass of nodules on the skin will be found to consist of eburnated bone; if that is the case, this shower-like affair may represent the homologs of the phalanges. This little mass of bone looks something like a sesamoid bone down in the metacarpophalangeal joint; it may represent one of the metacarpal bones.

DR. THOMAS BUTTERWORTH, Reading, Pa.: Is it not true that most supernumerary digits appear on the ulnar side of the hand?

DR. FRED D. WEIDMAN: Yes, but this is not invariable.

NOTE.—Sections subsequently confirmed the (eburnated) bony character of one of the nodules excised. Haversian systems and narrow canals were present.

Angiokeratoma. Presented by DR. CARLISLE DIETRICH, Redgranite, Wis. (by invitation).

C. N., a Negro aged 28, is under treatment for granuloma inguinale. In addition, the patient has several dozen angular pigmented papules on the scrotum, which range in size from 1 to 4 mm. The lesions are smooth, soft and subjectively symptomless. The patient states that these papules have been present more than one year. Histologic sections exhibited the picture of angiokeratoma, including hyperkeratosis.

DISCUSSION

DR. FRED D. WEIDMAN: I am sure that nobody here tonight would agree that these lesions are keratotic. The surface is smooth, and the fact that the sections exhibit hyperkeratosis means that the particular lesion selected for the biopsy was a keratotic one. It is something of a principle in general pathologic practice that a large mass of blood indicates stimulation and hyperplasia (in the case of the skin resulting in hyperkeratosis and acanthosis) in the neighborhood; for this reason I think the keratosis on the surface of these angiomas cannot be taken seriously. I do not believe there is anything fundamentally different in the pathologic picture of angioma and angiokeratoma. Both are just angioma. Acanthosis and hyperkeratosis over the summits of the lesions are secondary. There is real value to this presentation, in that the hyperkeratotic features have not been superadded to most of the lesions, but in the one which was sectioned it was demonstrated that they had.

Tertiary Syphilis. Presented by DR. ELMER R. GROSS, Wilmington, Del. (associate member).

C. N., a white man aged 69, states that three months ago he noticed a "swelling" at the outer canthus of the right eye, extending to the right supraorbital ridge. It has slowly increased and has always been asymptomatic. Tonight it is a jelly-like nodule extending to the lateral margin of the right eyebrow and is associated with an erythematous scaly eczema of both cheeks and malar prominences. The histologic report stated that the process was compatible with that of gumma. The Wassermann reaction was negative. From Dec. 5, 1937, to Jan. 17, 1938, the patient received six injections of bismuth intramuscularly, and there was progressive improvement.

DISCUSSION

DR. JOSEPH V. KLAUDER: The lesion is not sarcoid. I believe it is gumma, despite the negative Wassermann reaction. After all, one does not obtain positive Wassermann reactions in 100 per cent of patients with active syphilitic lesions. The histologic section does not confirm a diagnosis of gumma. Dr. Weidman feels that the lesion may be that but that sarcoid can be excluded.

DR. FRED D. WEIDMAN: The section ruled out cancer and sarcoid of Boeck at once. The enormous numbers of lymphocytes were incompatible with Boeck's sarcoid. I should be willing to grant, if forced to, that the lesion is a gumma, but after seeing the patient tonight, I feel that it is most likely some other kind of a sarcoid. In addition to this major lesion, there is the suggestion of infiltration near the inner canthus of the other eye. In other words, the condition is bilateral though not symmetric. It appears to me to be too soft for gumma, since no necrosis was present in the sections to account for the softness. It does not appear to be lupus—although, of course, lupus tumidus is possible. If the histologic picture were a little more definitely tuberculous I think I should favor the last condition. Although the tissue of leprous nodules resembles lupus tumidus, I doubt that the condition is leprosy. I feel the clinical and the microscopic pictures together show one of the tuberculids, probably close to but not identical with Boeck's sarcoid.

DR. SIGMUND S. GREENBAUM: Was the Wassermann test performed by complement fixation or by precipitation?

DR. ELMER R. GROSS, Wilmington, Del. (associate member): Both.

DR. REUBEN FRIEDMAN: Was examination of the spinal fluid done?

DR. ELMER R. GROSS, Wilmington, Del. (associate member): No.

Lymphogranuloma Venereum. Presented by DR. LEON HUGH WARREN (by invitation).

J. H., a Negro aged 32, presents across the entire lower part of the abdomen and the inguinal region a soft fluctuant raised mass with approximately eight scattered sinuses draining a moderate amount of seropurulent material. When the area is palpated, the wave of fluctuation travels across the entire area previously outlined. The patient had gonorrhea in 1926. In 1934 he had a purulent urethral discharge, which he believed to be gonorrheal and for which he gave himself oral medication. It subsided in one month. Three years ago a small nodule appeared in the right groin; this ulcerated and was excised after one month but continued to spread. Various sinuses appeared over the groins and the lower part of the abdomen and have persisted. Examination of the chest showed no sign of tuberculosis. The Mantoux test with 0.00002 mg. of purified protein derivative gave a 2 plus reaction. A Frei test on Jan. 8, 1938, produced a zone of erythema of 8 mm. with central induration of 1.5 mm. (positive). A smear of pus showed gram-negative cocci and rods. A culture of the pus showed Pneumococcus and Staphylococcus aureus. The Wassermann reaction was negative. A biopsy specimen from the margin of two draining sinuses showed only "chronic granulation tissue."

DR. SIGMUND S. GREENBAUM: I think the condition is unusual and extensive lymphogranuloma venereum. In the last few years, among the cases at the Philadelphia General Hospital there has been only 1 in which the condition was perhaps a quarter as extensive as in this case; and in that case it was limited to the groin and the forepart of the thigh. Until a few years ago this condition was diagnosed as gonorrheal bubo, and it is still thought to be that by some. I think scrofuloderma must be excluded before a clearcut diagnosis of Nicolas-Favre disease can be made.

DR. SAMUEL FREDERICK ROSEN, Savannah, Ga. (by invitation): Many of the Negroes in the South are victims of these chronic infections of the tuberculoid type. Recently I observed a Negress with a mass (lymphogranuloma venereum) in her neck which did not break down. Another mass could be felt in the right

fornix during pelvic examination. She had this trouble for about two months, became anemic and cachetic and lost some weight. One of the glands which had not broken down was removed from her neck and inoculated into a guinea pig. Tuberculosis did not develop. The process responded like magic to the Frei test. There was a marked reaction, and after that one injection most of the trouble cleared up. An ulcer developed at the site of the inoculation for the Frei test. It was a remarkable thing; I do not know how to explain it. I do not know whether the process was lymphogranuloma venereum, but the pathologist thought the picture was compatible with that diagnosis. A patient with this disease is usually given Frei antigen intravenously once or twice a week if he is able to afford it, as well as antimony, usually as antimony and potassium tartrate. He has to be built up and treated as if he had tuberculosis. He is put to bed and given a diet high in vitamins and in calories.

Pityriasis Rosea, Associated with Oral Lesions. Presented by DR. J. P. GUEQUIERRE.

C. S., a white girl aged 19, became ill on Jan. 1, 1938, with fever, nausea and fainting spells. At that time she noticed a solitary large oval patch on her neck. She now has a number of lesions, each of which is large enough to be a primitive plaque. There are several such lesions on the neck, one on the left breast, one on the left arm and one on the upper inner aspect of the left thigh. Scattered elsewhere is an eruption typical of her disease. On the right buccal mucosa is a partially annular lesion with a red border and a slightly depressed center; there is some desquamation. This lesion has never been painful. Its appearance resembles somewhat a lesion of pityriasis rosea on the skin. There is an enlarged lymph gland on the right side of her neck, but no other adenopathy.

DISCUSSION

DR. SIGMUND S. GREENBAUM: I do not recall any report of mucosal lesions in pityriasis rosea. When that eruption on the right buccal mucous membrane is broken down into its individual parts, at least five pinhead-sized grayish coated lesions are found; if the coating is removed, erosions are found underneath. Under the inferior maxilla is found what I think is a tender lymph node. I think the lesion is intraoral herpes simplex in a patient who has had a febrile derangement incident to her pityriasis rosea.

DR. EDWARD F. CORSON: It seems to me that the large mucosal lesion is pretty closely approximating the side of an amalgam filling; in certain positions of her lower jaw it approaches a tooth filled with that particular substance. I think the lesion is probably traumatic. The filling itself has a rather sharp edge, is metallic and may have proved somewhat irritating.

DR. J. P. GUEQUIERRE: With the tongue depressor I did rub that lesion pretty hard, but I could not break it down. It has a definite border and center. There has never been any pain. The patient was questioned as to whether she had bitten her cheek, and she stated that she had not.

DR. W. O. ROOP, Atlantic City, N. J.: I am inclined to classify this lesion as pityriasis rosea, though there are several rather unusual features, particularly the infiltration and marked scaling. I should like to ask the presenter whether there has been any study from a mycotic standpoint. The condition may be a form of ringworm.

DR. J. P. GUEQUIERRE: The infiltration and scaling may be due to some rather strenuous treatment she had previously. I do not think that is an unusual feature in pityriasis rosea. It is seen more or less frequently, particularly in the Negro.

Scleredema Adultorum (Buschke). Presented by DR. H. J. SMITH.

C. de T., a white woman aged 20, states that shortly after an attack of acute tonsillitis several months ago she noticed a thickening and stiffening of the skin

beginning about the neck and slowly extending down over the thorax to the level of the nipples and over the arms to just below the elbows. This was not accompanied by any discomfort or change in appearance but was embarrassing to the patient, since it made it difficult for her to flex her arms or move her neck and impossible for her to extend her arms above her head. The skin was indurated, thickened and waxy, the condition being similar to but more exaggerated than that present now. The histologic picture at this time conformed to that of morphea, and a diagnosis of generalized scleroderma was made. She has progressively improved, and there has been no resultant disfiguration or impairment of the function of the skin involved.

DISCUSSION

(All present agreed with the diagnosis.)

Sarcoma in a Dog, Treated with Roentgen Radiation. Presented by DR. JOSEPH V. KLAUDER and DR. FRED D. WEIDMAN.

This dog was shown at the November meeting. (ARCH. DERMAT. & SYPH. **37**:688 [April] 1938). Histologic examination of the tumor showed amelanotic melanoma. Roentgen therapy was applied to an area 5 cm. in diameter, using the following factors: 125 kilovolts, 5 milliamperes, 30 cm. distance and 1 mm. aluminum filter. On November 29, 355 was given; on December 6, 550, and on December 20, 355. The tumor was apparently radiosensitive, since it almost completely disappeared after this therapy. Early in January there was a recurrence. Now there is a plaquelike, sharply demarcated, movable subcutaneous mass about 3 cm. in diameter and about 1 cm. thick at the site of the original tumor. Extending down the right side of the abdomen there are multiple cutaneous nodules. In the axillary region there is considerable enlargement of the lymph nodes, which are fixed to the skin, and it appears that ulceration will occur.

DISCUSSION

DR. JOSEPH V. KLAUDER: In the treatment of this animal we are going to restrict the sulfur intake in the diet to a minimum, giving the least protein containing sulfur that is compatible with life, in the hope of retarding sulfur metabolism in the tumor. This procedure is in accordance with the observations of Herman Brown and me concerning the sulfur content of mouse carcinoma (Total Sulphur of Tissue in Normal and Abnormal Growth [Mouse Carcinoma], *J. Lab. & Clin. Med.* **20**:1143 [Aug.] 1935) and of carcinoma in man (Certain Phases of Sulfur Metabolism of the Skin, ARCH. DERMAT. & SYPH. **34**:568 [Oct.] 1936). We studied the total sulfur content of tissue in normal and abnormal growth. Determinations of total sulfur content of transplanted mouse carcinoma were made with animals on a normal and on a cystine-poor diet. A correlation was observed between the rate of growth of tumors and the sulfur content: the slower the growth, the less the sulfur content, and the more rapid the growth, the greater the sulfur content. We reviewed data pertaining to factors operative in retarding the growth of transplanted tumors and concluded that, regardless of other factors involved in retarding the growth of tumors in the animals studied, there was a correlation between the sulfur content and the rate of growth. Our observations on this point were consistent with the role that sulfhydryl compounds play in the cellular activity of normal and of abnormal growth. F. S. Hammett and S. P. Reimann (Cell Proliferation Response to Sulfhydryl in Mammals, *J. Exper. Med.* **50**:445 [Oct.] 1929; Cell Proliferation Response to Sulfhydryl in Man, *Proc. Soc. Exper. Biol. & Med.* **27**:20 [Oct.] 1929) expressed the belief that the biologic basis of malignant tumors is distortion of the sulfhydryl equilibrium. Consistently, the total sulfur content (determined by Herman Brown) of tumor tissue from this dog was unusually high—1 per cent (dry weight), moisture accounting for 86.7 per cent of the total weight. We therefore intend to inject into the tumors in this dog a heavy metal, probably colloidal silver oxide, in an attempt to produce silver sulfide and to retard sulfur metabolism in the tumors.

DR. FRED D. WEIDMAN: Melanotic and amelanotic melanoma do not usually regress as a result of irradiation. That makes me wonder whether I was wrong in my diagnosis and whether, after all, this process may not be one of the lymphoblastomas. The way this eruption has subsequently developed makes one lean strongly in that direction. It is often a feat to make an accurate histologic diagnosis in the round cell sarcoma–lymphoblastoma field, and in cases in which differentiation is difficult my policy has been to try to give a definite diagnosis one way or the other and then to qualify it in the body of the report to show what the other possibilities may be. As I see the situation now, the final answer to whether this is amelanotic melanoma or lymphoblastoma will come at the necropsy table. At necropsy I suggest that particular attention be given to the distribution of internal lesions, i. e., to whether they have a predilection for the members of the hemopoietic system, and that by all means samples be taken of bone marrow—not only samples but smears from the bone marrow. The condition may turn out to be lymphoblastoma.

A Case for Diagnosis (Glossitis Rhombica Mediana? Lingual Fibroma?). Presented by DR. VAUGHN C. GARNER.

C. H., a white boy aged 14, has had a solitary, sharply defined, angular, smooth, flat, elevated nodule ½ inch (1.3 cm.) in diameter as long as he can remember. It is situated in the midline on the dorsum of the tongue, about ½ inch (1.3 cm.) anterior to the circumvallate papillae.

DISCUSSION

DR. FRED D. WEIDMAN: This lesion is thick and extends deeply. It is not glossitis; there is marked hypertrophy of solid tissue; in fact, the lesion bulges up in a high, domed fashion toward the surface. I favor the diagnosis of fibroma.

DR. SIGMUND S. GREENBAUM: I think a biopsy would be of great value in this case. I think the lesion is a fibrocystic growth rather than a pure fibroma, but it is not glossitis rhombica mediana.

NOTE.—Sections disclosed fibroma.

Lupus Erythematosus. Presented by DR. ELMER R. GROSS, Wilmington, Del. (associate member).

Book Reviews

Approved Laboratory Technic. By John A. Kolmer, M.D., and Fred Boerner, M.D. Second edition. Price, $10. Pp. 893, with 380 illustrations and 12 plates. New York: D. Appleton-Century Company, Inc., 1938.

The value of this second edition is shown by the splendid reception accorded the first edition and its use as a standard work by many laboratories. Nothing less could be expected, since the authors have such high standing and ability. In the new edition the various technical procedures which are described have been approved by twenty-eight well known collaborators, many of them directors of laboratories. The volume comprises a judicious selection of various laboratory procedures, two or more methods frequently being included when the authors could not decide which was the most valuable.

Five new chapters appear in this edition. Chapter 6 deals with the diagnosis of early pregnancy, chapter 20 with diagnostic methods in mycologic practice, chapter 21 with examination of the skin and the mucous membranes for animal parasites, chapter 31 with the methods of performing allergic tests and chapter 38 with histologic methods and the preservation of museum specimens. Special attention has been devoted to parasitology, mycology and toxicology.

The volume is profusely illustrated with excellent black and white photographs and cuts and a dozen colored plates. The text is clearly written and attractively published. The book is invaluable for reference for both laboratories and practicing physicians.

Manual of Cosmetics. By Charles Lázár. English edition. Pp. 318, with 12 illustrations. Cleveland: The Sherwood Press, 1937.

Dr. Lázár has treated cosmetic dermatology in a masterful fashion. Unfortunately, the subject is more or less neglected in medical schools in this country. Besides describing in detail various local applications for the preservation of healthy skin and cutaneous appendages, he presents a review of the many modalities in common use for the removal of epidermal defects, new growths and nevi. Every detail is thoroughly discussed. He endorses the use of the drilling machine, so popular with Kromayer. His chapters on electrolysis, galvanocautery, diathermy and iontophoresis are replete with information unobtainable in other textbooks in English. Unfortunately, the translator has given all measurements in apothecaries' and English linear measure, without their metric equivalents. The book is a valuable addition to English dermatologic literature.